



Health and Safety

Ionising Radiation

Minimum Standard

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1 Aims and Principles

The aim of this Government of Jersey (GoJ) Minimum Standard is to provide guidance on the steps which should be taken to ensure employees and all other persons are not exposed to harmful levels of ionising radiation as a result of GoJ's working activities.

Departments responsible for carrying out works which could expose persons to ionising radiation must develop their own procedures detailing the specific arrangements to be implemented. The procedures must include the standards set out in this document or be of an equivalent or higher standard.

2 Legislation and Guidance

a) Applicable Legislation and Approved Code of Practice

[Health and Safety at Work \(Jersey\) Law, 1989](#)

[Working with Ionising Radiation – Approved Code of Practice \(ACoP 2 updated 2020\)](#)

b) Guidance

[Working safely with ionising radiation: Guidelines for expectant or breastfeeding mothers \(UK HSE\)](#)

[Radon in the workplace \(UK HSE\)](#)

3 Definitions

This section contains a limited number of definitions for terms associated with working involving ionising radiation. For further definitions, reference should be made to the [Ionising Radiation ACoP](#).

[Ionising Radiation](#)

The transfer of energy in the form of particles or electromagnetic waves of 100 nanometres or less or a frequency of 3×10^{15} hertz or more, capable of producing ions directly or indirectly.

Radiation Protection Advisor (RPA)

An individual who, or a body which, meets such criteria of competence as may from time to time be specified in writing by the Minister for the Regulating Department.

Radiation Protection Supervisor (RPS)

A person appointed by the employer whose function is to supervise work so that it is carried out in accordance with the local rules.

Controlled Area

An area designated for radiation work where special precautions are necessary to restrict exposures to ionising radiation.

Local Rules

Rules written to cover all activities relating to radiation protection in controlled and, where necessary, supervised areas, which are specific to the nature of the hazard and systems of control

Medical Adviser

A medical practitioner who is suitably qualified and experienced to be responsible for the medical supervision of those persons involved in work with ionising radiation.

A full set of definitions is contained in the [Ionising Radiation ACoP](#).

4 Who this Minimum Standard Applies to

- All Government of Jersey (GoJ) and States' employees
- Voluntary staff or those on honorary contracts where there is no implied contract of employment

5 Links to other GoJ Policies, Minimum Standards and Guidance

a) Policies

Government of Jersey - Health and Safety Policy

b) GoJ Minimum Standards

Risk Assessment

Occupational Health – Assessment and Monitoring

6 Roles and Responsibilities

The department's arrangements must clearly set out the roles and responsibilities of those required to manage the risks to employees and others from exposure to ionising radiation

Reference should be made to the Government of Jersey Health and Safety Policy for general responsibilities.

7 Overview

Ionising radiation can arise in the workplace in various forms such as radioactive sources used for teaching, density gauges used in site work, x-ray machines used for security or medical purposes and environmental sources such as radon.

Typical premises where ionising radiation is used include the hospital, airport, schools, prison, customs, police station, construction projects etc.

Exposure to ionising radiation can cause damage to cells which can ultimately lead to cancer and therefore exposure must be controlled.

Arrangements for the protection of persons from radiation are based upon three general principles recommended by the International Commission for Radiation Protection (ICRP):

- Every practice resulting in an exposure to ionising radiation shall be justified by the advantages it produces
- All exposures shall be kept as low as reasonably achievable
- The sum of doses and committed doses received shall not exceed the specified limits.

Where persons work with or could be exposed to ionising radiation in the workplace, the employer must:

- Ensure that a suitable and sufficient written risk assessment has been made before any new activity involving exposure to ionising radiation is first introduced
- Ensure that doses are maintained as low as is reasonably practicable (ALARP);
- Ensure that none of the relevant dose limits are exceeded.

This means that it will be necessary to weigh the costs of the possible health detriment

from exposure against the costs of reducing or eliminating that exposure. This will need to take into account possible risks to health and safety arising from alternative methods of carrying out the work to the extent of questioning whether a particular use of ionising radiation can be justified at all.

This minimum standard provides a summary of the action which should be taken to ensure work involving the use of ionising radiation is properly managed.

However, the Jersey [Approved Code of Practice – Working with Ionising Radiation \(ACoP2 – updated 2020\)](#) sets out further details of the expected standard of radiation protection in the workplace and must be consulted in conjunction with this Minimum Standard.

Following the standards set out in the ACoP will help to ensure compliance with the Health and Safety at Work (Jersey) Law, 1989.

8 Identifying activities involving ionising radiation

Any work involving the following would be defined as work with ionising radiation and suitable arrangements must be in place to ensure that the risks are properly managed.

1) Work defined as a 'practice' in the ACoP means work involving: -

- The production, processing, handling, use, holding, storage, transport or disposal of radioactive substances; or
- The operation of any electrical equipment emitting ionising radiation and containing components operating at a potential difference of more than 5 kV,

which can increase the exposure of individuals to radiation from an artificial source, or from a radioactive substance containing naturally occurring radionuclides which are processed for their radioactive, fissile or fertile properties;

2) Any work, other than the above (other than a practice) carried out in an atmosphere containing radon 222 gas at an annual average activity concentration in air exceeding 300 Bq m³

3) Any work (other than work referred to in paragraphs (a) and (b) above) with any radioactive substance containing naturally occurring radionuclides.

9 Notification of Specified Work

Where ionising radiation is to be used for the first time, or when significant changes to its use are planned, the Health and Safety Inspectorate must be informed at least twenty-eight days before commencing such use.

Details of the particulars to be included in the notification are contained in Appendix 1 of the [Ionising Radiation ACoP](#).

Appendix 2 of the ACoP [https://www.gov.je/SiteCollectionDocuments/Working in Jersey/ID Ionising Radiation ACoP2 updated 20200922 AM.pdf](https://www.gov.je/SiteCollectionDocuments/Working%20in%20Jersey/ID%20Ionising%20Radiation%20ACoP2%20updated%2020200922%20AM.pdf) details certain types of work with ionising radiation which **are not** required to be notified to the Health and Safety Inspectorate.

10 Appointment of Radiation Protection Adviser (RPA)

Any GoJ department which uses ionising radiation must appoint a Radiation Protection Adviser or Advisers as is necessary to assist the department in complying with the requirements of the [Ionising Radiation ACoP](#).

This appointment must be made in writing and should include the scope of advice the RPA is required to give.

Matters on which the RPA must be consulted are contained in Appendix 4 of the Ionising Radiation ACoP.

An RPA is not required to be appointed where the only work carried out with ionising radiation is as defined in Appendix 2 of the Ionising Radiation ACoP.

11 Appointment of Radiation Protection Supervisors (RPS)

Any GoJ department which uses ionising radiation must appoint a sufficient number of Radiation Protection Supervisors to ensure that any work in a controlled area or supervised area is undertaken in accordance with the local rules.

The RPS plays a supervisory role in assisting the employer to comply with the requirements of this Ionising Radiation ACoP and the local rules. The RPS should be an internal appointment of a person(s) who is directly involved with the work with ionising radiation, preferably in a line management position that will allow the RPS to exercise close supervision. The RPS need not be present at all times, although they would normally be the most senior person in day-to-day contact with the work.

12 Provision of Training and Instruction

Any persons engaged in work involving ionising radiation must be provided with adequate information and training to enable them to understand the following:

- The risks created by exposure to ionising radiation as a result of their work
- The precautions which must be observed
- The importance of complying with the medical, technical and administrative requirements of this Ionising Radiation ACoP.

The scope of training required will depend on the involvement the employees have with activities involving ionising radiation

Sufficient information must also be given to any other persons who could be affected by the work and the GoJ department in control of the work must ensure that the risks to their health and safety are adequately controlled. This could include other employees or others such as contractors or members of the public.

13 Employees Who May Become Pregnant

Ionising radiation poses particular risks to a developing foetus during early pregnancy and therefore any employees who could become pregnant, should be advised of the importance of informing their manager as soon as they suspect or discover they are pregnant.

Special dose limits (Ref: Section 17) apply during pregnancy which are designed to limit the dose to the foetus.

Further information on dose limits is available in Appendix 3 of the [Ionising Radiation ACoP](#).

14 Managing Clinical Exposure

Exposure of persons to ionising radiation for clinical purposes is not covered by the Approved Code of Practice – Working with Ionising Radiation.

Reference should be made to the UK Regulations and Ionising Radiation (Medical Exposure) Regulations 2017 for further guidance to enable adequate arrangements to be put in place to ensure risks are adequately controlled.

Reference should be made to the Ionising Radiation ACoP for further information on dose constraints and restricting exposure to comforters and carers.

15 Designated Areas, Local Rules and Monitoring

There are two types of designated areas for work with ionising radiation:

- Controlled area, including temporary controlled areas
- Supervised area

Controlled Area

The criteria used to define a controlled area are set out in the 'designated areas' section of the [Ionising Radiation ACoP](#).

The area must be described in the local rules, be physically demarcated and have suitable notices displayed at all access points.

No persons shall be permitted to enter a designated area unless they are a 'classified person' or are another person doing so under the written arrangements.

Areas which cannot be physically entered do not need to be designated as a controlled area if it is not reasonably foreseeable that a person, or part of a person, will enter or be present in that area.

If the periods of work with ionising radiation are clearly defined, or are intermittent, the area can be de-designated as a controlled area during the periods that the risk from ionising radiation are not present e.g. to permit access for cleaners. However, this may only be permitted if sufficient steps are taken to remove the need for designation e.g. any X-ray generator is isolated from the power source, or any radioactive substances are removed. These steps will need to be summarised in the local rules.

Supervised Area

The criteria used to defined a supervised area are set out in the 'designated areas' section of the [Ionising Radiation ACoP](#).

The area must be described in the local rules and warning signs may be required.

Any areas which do not fall under either of these designations are unrestricted and full access is permitted, including to members of the public.

Local Rules

Written local rules should identify the key working instructions intended to restrict any exposure in that controlled or supervised area. The GoJ department carrying out or responsible for the work involving ionising radiation will be responsible for ensuring that local rules are prepared.

Although local rules are only required for controlled (and where appropriate, supervised) areas, employers may choose to have local rules that relate to work with ionising radiation anywhere on the premises.

Details of typical information which should be contained in local rules is available in the [Ionising Radiation ACoP](#).

All employees working with ionising radiation must read the local rules and abide with the requirements.

When persons, other than classified persons, enter a controlled area then the entry should only be in accordance with written arrangements designed to ensure that:

- In the case of an employee aged 18 or over, he/she does not receive in any calendar year a cumulative dose which would require the employee to be designated as a classified person; or
- In the case of any other person, he/she does not receive in any calendar year a dose of ionising radiation exceeding any dose limit.

Persons entering for the purpose of undergoing a medical exposure are not subject to the provision of the written system of work.

[Monitoring of Designated Areas](#)

Where an area is designated as a controlled or supervised area, steps must be taken to ensure that levels of ionising radiation are adequately monitored in these areas and that working conditions are kept under review.

For areas designated on the basis of external radiation, adequate monitoring should include measurement of dose rates. For areas designated on the basis of possible exposure to internal sources of radiation, adequate monitoring should include measurement of air concentration and surface contamination, taking into account the physical and chemical states of the radioactive contamination.

Further information on monitoring, including equipment for monitoring and competency is available in the [Ionising Radiation ACoP](#).

16 Classification and Monitoring of Persons

[Designation of Classified Persons](#)

The employer shall designate as classified persons those of his/her employees who are likely to receive:

- An effective dose greater than 6 mSv per year; or

- An equivalent dose greater than 15 mSv per year for the lens of the eye; or
- Greater than 150 mSv per year for the skin or the extremities

and must immediately inform those employees of their designation.

A person may not become a classified person unless he/she has been certified fit by the Medical Adviser in the health record (Ref. Medical Surveillance).

Personnel Monitoring

Any departments where employees are exposed to ionising radiation must ensure that assessments are made of all significant doses of ionising radiation received by each of the classified staff and those unclassified staff who operate under suitable written arrangements. The findings of the assessment must be recorded.

Suitable arrangements will need to be made with an approved dosimetry service to provide systematic measurement of doses by the regular use of one or more personnel dosimeters or other suitable means. Such a service must be provided by one of those approved for this purpose by the Health and Safety Executive of the United Kingdom and the Health and Safety Inspectorate must be informed of the identity of the Approved Dosimetry Service selected.

Outside workers radiation passbooks

Any department which engages classified persons to carry out services in a controlled area under its control must ensure that the person is provided with a radiation passbook.

The department should ensure that the information entered into the radiation passbook is kept up-to-date.

Providing dose information to classified persons

If requested, the following information from the Approved Dosimetry Services should be provided to the classified person upon request.

- Copy of the dose summary relating to that person made within a period of 2 years preceding the request; and
- A copy of the dose record of that person.

Where a classified person leaves their employment, the department shall take all reasonable steps to provide the person with a copy of their termination record.

Medical surveillance

The primary purpose of medical surveillance is to ensure that persons are fit to commence work with ionising radiation and that reviews are made periodically to check that they remain fit.

All classified persons, those the department intend to classify and any persons who receive an overexposure, shall be subject to medical surveillance by the Medical Adviser and the department must ensure that this surveillance is attended and undertaken.

Medical surveillance will include:

- Pre-employment medical examinations
- Special medical examinations
- Periodic reviews of health;
- Determining whether further dose limit conditions are appropriate

Health Records

A health record must be prepared for any persons who are required to undergo medical surveillance.

Details of the particulars which must be included in the health record are contained in Appendix 6 of the [Ionising Radiation ACoP](#).

The health records must be kept until the person attains the age of 75 years or at least thirty years has passed since the date of the last entry.

17 Dose Limits

Dose limits are prescribed in the Ionising Radiation ACoP for:

- Employees of 18 years of age and above
- Trainees aged under 18 years
- Other persons
- Pregnant employees

Full details of dose limits for these categories of persons is available in Appendix 3 of the [Ionising Radiation ACoP](#).

18 Record Keeping

The maintenance of adequate records is an essential requirement and, where appropriate, will provide evidence to demonstrate that the relevant parts of the ACoP are being complied with.

The records required to be kept are identified in the [Ionising Radiation ACoP](#) and the

requirements are summarised in Appendix 5, including the appropriate periods for which records should be retained.

Records, other than those which relate specifically to medical examinations must be available for inspection by the Health and Safety Inspectorate if required.

19 Arrangements for the Control of Radioactive Substances, Articles and Equipment

Adequate arrangements, as set out in the [Ionising Radiation ACoP](#), must be in place to ensure that radioactive substances, articles and equipment are properly controlled.

These arrangements should include:

- Management of sealed sources and articles embodying or containing radioactive substances
- Leak tests
- Accounting for radioactive substances
- Storage arrangements
- Transport of radioactive sources
- Movement of radioactive sources
- Disposal of radioactive sources

The Ionising Radiation ACoP also sets out the duties of manufacturers, suppliers, importers and installers of articles for use in work with ionising radiation which should be referred to if required.

20 Equipment used for medical exposure

The [Ionising Radiation ACoP](#) sets out additional requirements relating to the use of ionising radiation equipment for medical purposes and additional action is required to be taken by the department to ensure that the use of this equipment is properly managed.

21 Misuse or interference with sources of ionising radiation

There is a requirement under the Ionising Radiation ACoP that no person shall intentionally or recklessly misuse or without reasonable excuse interfere with any radioactive substance or any electrical equipment to which the ACoP applies.

This information should be included in any training or information provided to employees.

22 Assessment of hazards, contingency planning and emergency procedures

All department which carry out work with ionising radiation must prepare a written risk assessment. This will enable the department to take the steps required to prevent foreseeable accidents occurring, reduce their consequences and prepare contingency plans to limit any hazards.

Where the risk assessment identifies that a radiation accident is reasonably foreseeable, the department will need to prepare a contingency plan designed to ensure that the exposure of persons to ionising radiation is restricted as far as is reasonably practicable.

The contingency plan should deal with the hazards created in the most efficient and effective manner and be designed to ensure that all radiation exposures are as low as reasonably practicable.

Further detail on contingency plans and managing the risk of emergencies is available in the [Ionising Radiation ACoP](#)