Leaflet 2

Risk Assessments

CONTENTS

Scope

1 A suitable and sufficient risk assessment (RA) is required for all activities involving ionising radiation or radioactive material. A suitable and sufficient prior risk assessment (PRA) is required for any new (or unique) activity involving work with ionising radiation. This Leaflet details what is required to produce such a risk assessment (RA) or prior risk assessment (PRA).

Statutory Requirements and Parallel Arrangements

2 In addition to the general requirements of the Health and Safety at Work etc Act 1974 and the Management of Health and Safety at Work Regulations 1999, the following specific legislation applies:

- Ionising Radiations Regulations 1999 (IRR99) (apply directly).

Duties

Commanding Officer or Head of Establishment (CO/HoE)

3 The CO/HoE has a duty to the Secretary of State, and a personal responsibility to protect the environment, and secure the health, safety and welfare of their staff at work. The CO/HoE is also required to protect persons not in MOD employment (e.g. members of the public) against risks to their health and safety arising from the MOD work activities. This includes radiation safety. The CO/HoE's authority (but not responsibility) in respect to radiation safety management may be delegated to appropriate personnel, such as a Radiation Safety Officer (RSO).

Radiation Safety Officer (RSO)

4 The Radiation Safety Officer (RSO) is to ensure appropriate risk assessments/prior risk assessments (RA/PRA) are produced for all work with ionising radiation. The RSO may be required to liaise with the WPS, RPS, the DE&S procurement team, the RPA and others in obtaining or producing a suitable and sufficient RA/PRA. The RSO is to ensure that any radiation RA/PRAs have been brought to the attention of those persons that may be affected by their contents.

Radiation Protection Supervisor (RPS)

5 An RPS must be appointed where it is necessary to designate a controlled or supervised area (see Leaflet 4). Where an RPS is appointed, their duties are to include obtaining from the appropriate procurement team, or prepare in conjunction with the RSO and RPA, a RA for work involving ionising radiation and ensure the RA and the resulting Contingency Plans are sufficient for work in their area or section.

6 If a new work activity with ionising radiation is planned, a suitable and sufficient PRA is to be requested as early as possible from those initiating the work. The RPA should also be advised of this new activity and can assist in producing the PRA.

Workplace Supervisor (WPS)

7 In areas where there is no requirement for an RPS, a WPS should be appointed to carry out duties to ensure work is carried out in accordance with local orders for radiation safety (see Leaflet 16). In addition to those duties, a WPS may be required to assist in the preparation of RA/PRAs and Contingency Plans.

Employees

8 It is the responsibility of all employees to ensure that they are familiar with the content of all RA/PRAs and Contingency Plans.

Risk Assessment (RA)

9 The general requirement to have a risk assessment that covers all workplace hazards as required by MHSWR 99 is dealt with in Leaflet 39 of JSP 375. A suitable and sufficient risk assessment for work involving ionising radiation is required under IRR99. In general, a risk assessment is to:

9.1 Identify the hazards and how they arise;

9.2 Investigate how the hazards arise and impact those affected;

9.3 Explain how the risks are managed;

9.4 Undergo a review at least annually or when there are material changes.

10 Summary Risk Assessments may be included in the Annexes of the JSP 392 Leaflets for specific items of equipment containing radiation sources or can be located on the Dstl Radiation Protection web page (http://collab.dstl.r.mil.uk/DRPA/Pages/default.aspx).

Prior Risk Assessment (PRA)

11 The requirement for a prior risk assessment complements the related requirement for a risk assessment as described above. IRR99 additionally requires that any new activity involving work with ionising radiation or radioactive material must not begin until a prior risk assessment has been completed. The main purpose of the prior risk assessment is for the CO/HoE to identify the measures needed to restrict the exposure of employees and other persons. Both routine exposure, and hazards with the potential to cause a radiation accident, must be considered and evaluated.

12 Radiation risk is also to be considered at all stages of the CADMID procurement cycle for equipment containing radioactive material or emitting ionising radiation, and must also address the through life cycle and eventual disposal of the ionising radiation source. All aspects of maintenance and operation (including military service) are to be taken into account.

13 Those managing the procurement process for equipment containing radioactive material or emitting ionising radiation are, in consultation with an appropriate RPA, to assess the risks and recommend solutions to reduce the risks in order to reduce exposure to radiation to as low as reasonably practicable (see Leaflet 1).

14 The content and considerations for a prior risk assessment are specific to ionising radiation and are detailed in Annex A.

15 The prior risk assessment must be suitable and sufficient for the work activity, so for many activities (where the hazard may be limited), the prior risk assessment need not be complex. The RPA is to be consulted for assistance in the preparation of meeting the requirements of Annex A.

16 A prior risk assessment will satisfy the requirements of a risk assessment detailed in Leaflet 39 of JSP 375 as far as protection from ionising radiation is concerned. However, the radiation protection aspects of the work activity are not to be considered in isolation from other health and safety considerations, as one may impact on the other.

Actions Arising from a Prior Risk Assessment

17 Units and establishments are to introduce safety measures to eliminate or minimise the risk, as identified in the prior risk assessment, and provide information, instruction and formal training as appropriate to reduce radiation exposure.

18 Units and establishments are also to identify processes in which, as a consequence of an accident or incident:

18.1 Any person may receive a radiation overexposure as a result of a single exposure (see Leaflets 6 and 14); or

18.2 A new controlled area (see Leaflet 4) would be required to restrict access to high dose rate or contaminated areas.

Contingency Plans

19 Where the PRA identifies that a risk exists from an identifiable radiation accident, the CO/HoE must take all reasonably practicable steps to prevent any such accident and to limit the consequences of any such accident which does occur. The CO/HoE must also provide employees with the information, instruction, training and equipment necessary to restrict their exposure to radiation from accidents.

20 When a PRA identifies that a radiation accident is reasonably foreseeable, Contingency Plans are to be produced by the unit or establishment that detail the steps to be taken to prevent and limit the consequences. The RPA is to be consulted on the compilation of the contingency plan. Leaflet 40 gives further details on Contingency Plans.

Review of Risk Assessments Including Prior Risk Assessments

21 All risk assessments and prior risk assessments shall be reviewed by a unit or establishment at least annually. However, a more frequent review may be necessary, dependent on the nature of the work and the degree of risk. Additionally, the risk assessment is to be reviewed where:

21.1 There is reason to suspect that the assessment is no longer valid (e.g. due to equipment or process modifications);

21.2 There has been a change in the work to which the assessment relates.

Records

22 Risk assessments should be live documents that are held locally and must be made available to all individuals involved in the work to which it refers, as well as to auditors and regulators when required. If a new assessment is required, the old risk assessment is to be retained for a minimum period of 2 years from the date of the new assessment (see Volume 1, Chapter 3 Record Keeping).

Related Leaflets

23 Other JSP392 Leaflets referred to herein are shown in Table 1.

Table 1 Related Leaflets

Leaflet Number	Leaflet Title
1	Acquisition of radioactive material and radiation generators
4	Restriction of exposure to radiation
6	Dosimetry
14	Investigation, notification and reporting of unusual radiation events
16	Local orders for radiation safety
40	Contingency Plans

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Leaflet 2 Annex A
Contents of Prior Risk Assessments

1 A prior risk assessment is to consider and contain:

1.1 A detailed description of the work to be undertaken and the intended use of the equipment or process under normal operating conditions, including any planned systems of work;

1.2 The reasons for using particular sources of ionising radiation (this is not needed if the work involves radioactive material arising from the nuclear propulsion or nuclear weapons programmes, or the management of radioactive waste);

1.3 A description of the radionuclides involved in the process, their form (sealed sources or unsealed radioactive substances) and an estimate of the maximum activities (in Becquerels) involved. This includes naturally occurring radon which may be present in the workplace;

1.4 A description of any equipment which emits radiation;

1.5 Plans of installations and diagram(s) of the equipment or process, including engineering control measures and design features already in place or planned;

1.6 Description of any controlled and supervised areas;

1.7 Estimate of the radiation dose rates, and the maximum individual and collective radiation doses, likely to be received in normal operation;

1.8 Assessment of the likelihood of contamination arising and being spread, and estimates of levels of airborne and surface contamination likely to be encountered;

1.9 The results of any previous personal dosimetry or area monitoring relevant to the proposed work;

1.10 Advice from the manufacturer or supplier of the equipment about it's safe use and maintenance;

1.11 Engineering control measures and design features already in place or planned;

1.12 Any planned systems of work;

1.13 The effectiveness and suitability of personal protective equipment (PPE) that is to be provided;

1.14 The extent of unrestricted access to working areas where dose rates or contamination levels are likely to be significant;

1.15 Details of any possible accident scenarios (e.g. fire, breakages, flooding), their likelihood and potential severity:

1.16 The consequences or possible failures of control mechanisms such as interlocks, ventilation systems, warning devices or systems of work;

1.17 Steps to prevent identified accident situations or limit their consequences.

2 The prior risk assessment should enable the following to be determined:

2.1 What action is needed to ensure that the radiation exposure of all persons is kept as low as reasonably practicable (ALARP) (see Leaflet 4);

2.2 What steps are necessary to achieve the control of exposure by the use of engineering controls, design features, safety devices and warning devices and by the development of systems of work;

2.3 Appropriateness and type of personal protective equipment (see Leaflet 4);

2.4 The need to establish any dose constraints for planning or design purposes (see Leaflet 4);

2.5 The need to alter the working conditions of any female employee who declares she is pregnant or breastfeeding (see Leaflet 4);

2.6 An appropriate investigation level to check that exposures are being restricted as far as reasonably practicable (see Leaflet 4);

2.7 Maintenance and testing schedules for control measures;

2.8 Any necessary contingency plans;

2.9 The training needs of classified and unclassified employees;

2.10 The need to designate areas as controlled or supervised (see Leaflet 4);

2.11 Actions needed to ensure restriction of access and other measures in controlled and supervised areas;

2.12 The need to designate certain employees as classified persons;

2.13 The content of suitable programmes of dose assessment for those who must enter controlled areas (see Leaflet 6);

2.14 The responsibility of managers for ensuring compliance with regulations;

2.15 An appropriate programme of monitoring and auditing of the arrangements in accordance with the Regulations.