



Ministry
of Defence

JSP 392

Management of Radiation Protection in Defence

Part 1: Directive

Foreword

The requirement to keep people safe and protect the environment – at home and overseas – has been set by the Secretary of State (SofS) for Defence through their Health, Safety and Environmental Protection (HS&EP) Policy Statement. The Policy Statement is a commitment of personal leadership by the SofS and their reliance on Commanding Officers, line managers and all those in leadership roles to ensure that HS&EP policy is applied throughout Defence.

HS&EP has been established as one of Defence's key functions to provide the policies and processes to enable Defence to deliver the SofS HS&EP Policy Statement and to discharge the duty of care that Defence has to their people, the public, and the environment.

The HS&EP function under the Director HS&EP is responsible for setting and owning the policy, strategy and governance framework for HS&EP in Defence and is the functional owner of Joint Service Publication (JSP) 392. It is the responsibility of Commanding Officers, line managers and all those in leadership roles to ensure that personnel, including contractors, involved in the delivery of Defence activities are fully aware of their radiation protection responsibilities.

David King
Director Health Safety & Environmental Protection (HS&EP)
and HS&EP Functional Leader

Preface

How to use this JSP

1. The content of JSP 392 applies to all MOD sites (including Defence Agencies) and all MOD personnel. It applies to MOD ships, units and establishments both in the United Kingdom and overseas.
2. JSP 392 is primarily designed for users of small quantities of radioactive material and x-ray equipment, rather than users of nuclear material. This JSP in its entirety should not be referenced in contracts documents. However, specific requirements in this document may be detailed in a contract specification. Commercial Officers should discuss with the subject matter expert in the appropriate Top-Level Budgets (TLBs) the information that they intend to include. This JSP will be reviewed at least annually.
3. The JSP is structured in two parts:
 - a. Part 1 - Directive, which provides the direction that must be followed in accordance with Statute, or Policy mandated by Defence or on Defence by Central Government; and
 - b. Part 2 - Guidance, which provides the guidance and best practice that will assist the user to comply with the Directive(s) detailed in Part 1.

Related JSPs / Publications	Title
DSA 01.1	Defence Policy for Health, Safety and Environmental Protection
JSP 375	Management of Health and Safety in Defence
JSP 418	Management of Environmental Protection in Defence
JSP 425	Examination and Testing of Ionising Radiation Detection and Monitoring Equipment.
JSP 441	Information, Knowledge, Digital and Data in Defence
JSP 518	Regulation of the Naval Nuclear Propulsion Programme
JSP 538	Regulation of the Nuclear Weapon Programme

Coherence with other Defence Authority Policy and Guidance.

4. Where applicable, this document contains links to other relevant JSPs, some of which may be published by different Defence Authorities. Where particular dependencies exist, these other Defence Authorities have been consulted in the formulation of the policy and guidance detailed in this publication.

Further Advice and Feedback- Contacts

5. The owner of this JSP is DHSEP. For further information on any aspect of this guide, or questions not answered within the subsequent sections, or to provide feedback on the content, contact: HSEP-GroupMailbox@mod.gov.uk

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1. Radiological Protection and MOD Policy

The Legislative Framework

1. The main UK statutes and subordinate legislation of interest to MOD in terms of radiological safety and environmental protection are:

LEGISLATION		FURTHER INFORMATION
The Health and Safety at Work etc. Act 1974	HSWA1974	Annex A to JSP 392 (of this Chapter) Annex D to JSP 392 (of this Chapter) JSP 375
The Ionising Radiations Regulations 2017 The Ionising Radiations Regulations (Northern Ireland) 2017	IRR17	Annex A to JSP 392 (of this Chapter) Annex B to JSP 392 (of this Chapter) Annex C to JSP 392 (of this Chapter) (JSP 518 and 538 for nuclear sites) (JSP 471 for nuclear accident response)
The Radiation (Emergency Preparedness and Public Information) Regulations 2019	REPP19	Annex A to JSP 392 (of this Chapter) (JSP 518 and 538 for nuclear sites) (JSP 471 for nuclear accident response)
The Ionising Radiation (Medical Exposure) Regulations 2017 The Ionising Radiation (Medical Exposure) Regulations (Northern Ireland) 2018	IRMER17	Annex A to JSP 392 (of this Chapter)
The Environmental Permitting (England and Wales) Regulations 2016 (as amended)	EPR16	Annex B to JSP 392 (of this Chapter) Annex C to JSP 392 (of this Chapter) (JSP 518 and 538 for nuclear sites)
The Radioactive Substances Act 1993 (as amended) (Northern Ireland only)	RSA93	Annex B to JSP 392 (of this Chapter) Annex C to JSP 392 (of this Chapter) (JSP 518 and 538 for nuclear sites)
The Environmental Authorisations (Scotland) Regulations 2018	EASR18	Annex B to JSP 392 (of this Chapter) Annex C to JSP 392 (of this Chapter) (JSP 518 and 538 for nuclear sites)
The High Activity Sealed Radioactive Sources and Orphan Sources Regulations 2005 (as amended) (Northern Ireland only)	HASS05	Annex B to JSP 392 (of this Chapter) Annex C to JSP 392 (of this Chapter) (JSP 518 and 538 for nuclear sites)
The Nuclear Installations Act 1965 (as amended)	NIA65	JSP 518 and JSP 538
The Control of Artificial Optical Radiation at Work Regulations 2010		Annex D to JSP 392 (of this Chapter)
The Control of Electromagnetic Fields at Work Regulations 2016	CEMFAW16	Annex D to JSP 392 (this Chapter)
The Justification of Practices Involving Ionising Radiation Regulations 2004 (as amended)		**Not applicable to Defence activities**
The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (as amended)	CDG09	DSA03 DLSR Dangerous Goods Manual JSP 538
Atomic Weapons Establishment Act 1991 (as amended)	AWEA91	

2. The above list is not exhaustive; equivalent legislation may exist for UK Devolved Administrations and UK overseas territories and dependencies. Commanding Officers and Heads of Establishment (CO / HoE) are responsible for assuring themselves that they are working to the appropriate legislation.
3. There are additional pieces of legislation within the remit of radiological safety and environmental protection that are applicable to MOD. These are covered in other JSPs (see the Legislation Table above).
4. Many of the Acts and Regulations in the above Legislation Table bind the Crown, although, under certain circumstances, dis-applications and exemptions relating to specific provisions can apply. The HSWA1974 and its subordinate legislation (IRR17, REPP19, IRMER17), generally apply to MOD. The Justification of Practices Involving Ionising Radiation Regulations 2004 however, does not apply to Defence activities.
5. Arrangements adopted in overseas Commands should, as far as is reasonably practicable, be no less stringent than those applying in the United Kingdom, subject to the discretion of local commanders and taking cognisance of local statutory requirements.
6. Legislation is supported by a variety of publications, which include statutory and non-statutory guidance and Approved Codes of Practice (ACoP). Government, non departmental public bodies and agencies in many cases also produce advisory material. In addition, guidance material can be provided by groups within industry.
7. Advice on compliance with the relevant legislation should be obtained from a Radiation Protection Adviser (RPA) or a Radioactive Waste Adviser (RWA) as appropriate. RPA and RWA services can be provided by the Defence Science and Technology Laboratory (Dstl), who are part of MOD, or any other RPA / RWA as appropriate.

Parallel Arrangements in MoD

8. Where Defence has exemptions, derogations or dis-applications. MOD policy is to implement parallel arrangements that follow, where practicable, the relevant statutory regimes.
9. Legislation to which MOD is wholly or partially exempt and the means by which MOD implement parallel arrangements are described in Annexes (A-D) to this Chapter.

Special Situations

10. MoD is a complex organisation and it is possible that a number of situations encountered do not clearly fit within the established legal provisions. Two situations (voluntary Groups and Site Control and Contractors) are identified below. In the event of the occurrence of situations that are not covered within this Chapter or the Leaflets in Volume 2, and as, in many cases the CO / HoE has personal legal responsibility, the CO / HoE should ensure that they have sought the advice from an RPA or RWA.

Voluntary Groups

11. Most legislation relating to ionising radiation operates where work is being carried out or where an “undertaking” exists. Undertakings can include charities and not for profit organisations as well as commercial companies. Where a number of people come together to carry out a certain activity on a voluntary basis and make no charges for any of their

activities, they are defined as a “voluntary group”. As voluntary groups are not an undertaking and are not at work, most legislation does not apply to them.

12. Where a CO / HoE allows a voluntary group to operate on a MOD site, they are personally liable for ensuring that the operations of the group do not adversely affect the health and safety of staff on the site or result in a release to the environment of radioactive materials. Where there is a reason for such groups to exist, CO / HoE is advised to have a written agreement with the group confirming that a condition of their continued presence is that health and safety and environmental legislation is applied to their operations.

Site Control and Contractors

13. MOD has derogations and exemptions from parts of the legislation but contractors working for MOD do not. In order to determine whether legislation applies and how it is applied, it is often necessary to determine which organisation has control of a site or work activity. This is a particularly complex issue and advice must be sought from an RPA or RWA on this issue. Annex F provides a flowchart that may be used to determine control and the application of the radioactive substances’ regulations.

Non-Human Species

14. MOD follows the recommendations of the International Commission on Radiological Protection (ICRP) who believes that the standards of environmental control needed to protect man to the degree currently thought desirable will ensure that other species are not put at risk. Occasionally, individual members of non-human species might be harmed, but not to the extent of endangering whole species or creating imbalance between species. However, there is ongoing research in this area and MOD will follow developments, both internationally and nationally, and keep this policy under review.

Policy Development

15. Annexes A-D provides a more detailed explanation of the relevant legislation and MOD policy in the following areas:

- a. Annex A – Ionising Radiation Protection Policy;
- b. Annex B – Radioactive Material Control Policy;
- c. Annex C – Radioactive Waste Control Policy; and
- d. Annex D – Non-Ionising Radiation Protection Policy.

Ionising Radiation Protection - Legislation and Policy

Relevant Legislation

1. For ionising radiation, the main principles of radiation protection are developed by the International Commission on Radiation Protection (ICRP), who publishes recommendations and practical information. Other aspects of radiation protection derive from bodies such as International Atomic Energy Agency (IAEA) and environmental forums. These recommendations and guidance form the basis of MoD policy often, where appropriate, through UK legislation.

2. The HSWA1974 is the UK statute under which the main regulations relating to ionising radiation fall: Compliance with the Nuclear Installations Act is addressed in separate JSPs but is briefly included here for completeness.

	BIND THE CROWN?	DESCRIPTION
IRR17	✓	Imposes duties on employers to protect employees and other persons against ionising radiation arising from work with radioactive substances and other sources of ionising radiation. Imposes certain duties on employees.
IRMER17	✓	Lays down the basic measures for the health protection of individuals against the dangers of ionising radiation in relation to medical exposures.
REPIR19	✓	Imposes basic measures for the protection of the health of workers and the general public against the dangers arising from ionising radiation in the event of a radiation emergency.
NIA 1965		Licenses Nuclear sites and provides for the application of the IRR17 to such sites.

3. Generally, the MOD is bound by the provisions of HSWA1974 and its subordinate legislation. It is worth noting that under certain circumstances derogations and exemptions to specific provisions can apply.

MoD Policies

4. The key features of the legislation relating to radiation protection are noted and the MOD policy position is made clear. It is expected that all CO / HoE will have considered these issues as a minimum.

- a. radiation doses are As Low as Reasonably Practicable (ALARP). It is the responsibility of the CO to ensure that doses are ALARP; however, their authority to achieve this may be delegated to the Radiation Safety Officer (RSO) for the unit / establishment. Advice on ensuring doses are ALARP must be sought from an RPA;

- b. radiation risk assessments have been carried out. Prior to undertaking work with ionising radiation, an appropriate risk assessment must be carried out. Advice on the content and adequacy of the risk assessment must be sought from an RPA. This risk assessment should ideally be integrated with the general risk assessment required under the Management of Health and Safety at Work Regulations;
- c. appropriate work instructions are in place. Written work instructions detailing how to manage the risks identified and providing any contingency plans must be provided to the staff concerned. The level of detail should be commensurate with the risk. Advice on the content and adequacy of work instructions must be sought from an RPA;
- d. Radiation Detection and Monitoring Equipment (RDME). The CO / HoE has a statutory responsibility to 'provide suitable and sufficient monitoring equipment' which is 'properly maintained and remains 'fit for purpose'. Such equipment must be 'adequately tested at appropriate intervals'. The MOD Radiation Protection Instrument Committee (RPIC) provides a forum where CO / HoE can make their requirements known to the central procurement authority for RDME within Defence Equipment and Support (DE&S). The RPIC ensures that MOD maintains radiological protection instrumentation sufficient to meet its legal responsibilities. Additionally, advice on the selection of appropriate instrumentation must be sought from an RPA;
- e. Radon. All MOD facilities in radon affected areas in the UK and Overseas are required to have an appropriate risk assessment and monitoring regime to determine levels of radon. Where elevated radon levels exist, remedial actions must be put in place. Advice should be sought from the appointed RPA for the site / activity. All activity should be co-ordinated through the Head of Establishment (HoE) as soon as possible;
- f. assessment of dose. There is a statutory requirement for employers to assess the radiation dose to their employees. A service for this is generally available from the Approved Dosimetry Service (ADS) run by Dstl Chemical Biological and Radiological Division at Alverstoke. ADS records form an important part of MODs response to Parliamentary Enquiries and medicolegal claims and should be readily available and retained for as long as is reasonably practicable;
- g. formal investigations. It is MOD policy that a formal investigation must be carried out if radiation doses exceed the defined investigation levels. A formal investigation level is to be prescribed by Commanding Officers for occupationally exposed workers. This investigation level is set at a maximum of 6m Sv effective dose in any calendar year; although local circumstances will often justify the setting of a lower level. The RPA must be consulted as to the setting of an appropriate investigation level. Where the effective dose to any MOD employee exceeds the investigation level, it is the responsibility of the CO / HoE to ensure that a locally conducted investigation is carried out. The purpose of this investigation is to determine whether all steps are being taken to keep radiation exposures ALARP. Detailed instructions are contained in Part 2 Leaflet 14. The RPA must also be consulted as to the conduct of this investigation; and
- h. assurance. TLBs shall have mechanisms to provide assurance against the requirements of this JSP. This will usually include some form of audit by an RPA or RWA. Audit reports provide evidence for the assessment of performance required from TLBs in Annual Reports.

5. Information on the practical implementation of these policies is given in Part 2 of this JSP.

The Nuclear Installations Act 1965

6. NIA65 is generally not applicable to the Crown (i.e. MOD) although Section 9 acts to apply the liability provisions referred to above as though the Act did apply. Reactors in a means of transport (which include operational Nuclear Powered Warships' (NPWs) reactors) are further specifically dis-applied from the Act. NIA does apply where MOD is not in direct control of activities, for example at the Atomic Weapons Establishment (AWE) and the Devonport Royal Dockyard Limited (DRDL). The Office for Nuclear Regulation (ONR) have statutory responsibilities under NIA65. The Defence Nuclear Safety Regulator (DNSR) regulates MoD Duty Holders who are exempt from NIA65 in accordance with equivalent provisions, including Authorisation Conditions which correspond to ONR Licence Conditions.

7. In order to implement parallel arrangements to NIA65, the SofS has appointed an internal regulator, the DNSR in this area. Through their authorisation conditions, DNSR applies parallel conditions to those required under the NIA65. DNSR sponsors JSP 518 (Regulation of the Naval Nuclear Propulsion Programme) and JSP 538 (Regulation of the Nuclear Weapon Programme).

8. NIA65 does apply to the major Defence nuclear contractors and is enforced by the Office for Nuclear Regulation (ONR).

Radioactive Material Control - Legislation and Policy

Relevant Legislation

	BIND THE CROWN	DESCRIPTION	FURTHER INFORMATION
EPR16 (England and Wales)	Parallel arrangements: Memorandum of Understanding (MOU) between the EA and MOD	Provides a consolidated system of environmental permitting in England and Wales. Includes provisions for out of scope, exempt and permitted substances. Also includes provisions for High Activity Sealed Sources (HASS).	
EASR18	Parallel arrangements: Agreement between SEPA and MOD in place	Provides a consolidated system to manage the keeping and use, accumulation and disposal of radioactive substances in Scotland.	
RSA93 and associated exemption Orders and HASS05 (Northern Ireland)	Parallel arrangements	A system to manage the keeping and use of radioactive materials and the accumulation and disposal of radioactive waste.	
IRR17	□	Imposes duties on employers to protect employees and other persons against ionising radiation arising from work with radioactive substances and other sources of ionising radiation. Impose certain duties on employees.	

1. RSA93, EPR16, EASR18 and HASS05 (Northern Ireland) are not applicable to MOD. In accordance with the Secretary of State's Policy Statement on Health, Safety and the Environment, MOD has put in place parallel arrangements that achieve outcomes that are, so far as reasonably practicable, at least as good.

2. The equivalent standards of control in place under EPR16 and EASR18 apply across MOD with the exception of MOD's nuclear authorised sites. In these cases, the control of non-mobile radioactive substances is regulated by DNSR.

MoD Policies

3. The key features of the UK Policy and legislation relating to the control and management of radioactive materials are noted and the MOD policy position is made clear. It is expected that all CO / HoE will have considered these issues as a minimum:

- a. use of Radioactive Material. Radioactive material is not to be used in MOD equipment where use of alternative materials is reasonably practicable and necessary with meeting operational requirements. Under no circumstances is Radium-226 to be used for luminous items other than in equipment of historic importance where ALARP considerations are to apply;
- b. introduction of new sources of Radioactive Material. Where possible, procurement of new sources of radioactive material should be avoided. Where necessary to meet operational requirements, and preferably at the Concept stage of the CADMID cycle, the Delivery Team must consult an RPA for advice on the implications of introducing new radioactive material;
- c. disposal of Radioactive Material. Items containing radioactive material are generally back loaded under strict instructions to main stores organisations for centralised disposal. Local disposal should only be considered after obtaining RWA advice. It is the responsibility of the appropriate Delivery Team to develop a Disposal Plan and ensure funding is available for the disposal of radioactive items or radioactive waste. The Defence Equipment Sales Authority must be consulted to utilise the existing contracts for radioactive material disposal;
- d. sale of Radioactive Material. There is no legal impediment to the sale of radioactive materials, but the appropriate procedures must be followed. All sales should be through the Defence Equipment Sales Authority;
- e. gifting of items containing Radioactive Material. No items containing radioactive material are to be presented to or accepted by museums or voluntary groups as gifts;
- f. disposal of mobile platforms. It is MOD policy that all major platforms, including ships and aircraft, maintain registers of hazardous substances, including radioactive materials and surveyed for radioactive items prior to disposal; and
- g. accounting and records. This is the key requirement to ensure legal compliance. Records of the radioactive material held at any site must be maintained in accordance with legal requirements. There is no prescribed minimum period for the retention of such records. MOD policy is therefore that records are retained indefinitely. This applies even where other legislation would indicate that records may be destroyed.

Parallel Arrangements - The Environmental Permitting (England and Wales) Regulations 2016 (as amended)

4. MOD has in place a Memorandum of Understanding (MoU) to manage the relationship with the Environment Agency. An Annex to this MoU deals with radioactive material. A dispute resolution procedure is in place in the event that the MoU does not meet the needs of either MOD or the EA. CO / HoE are to report any issues with the MoU to DSA.

Key Policies of the MOU between the EA and MoD

5. The key features of the “Additional Arrangements for Specified MoD and Defence-related Nuclear Sites, Annex B”) to the MoU are:

- a. keeping and Using Radioactive Substances. The EA issues “Notifications” and “Approvals” to MOD users which are equivalent to the Environmental Permit issued to civil users. Notifications apply to the keeping and use of sealed sources and Approvals apply to the keeping and use of open sources and / or the accumulation and disposal of radioactive waste. Applications to the EA for Notifications / Approvals are coordinated through the Chemical Biological and Radiological Division within the Defence Science and Technology Laboratory (Dstl);
- b. notification and Approval Conditions. “Notifications” and “Approvals” detail conditions relating to the management and control of radioactive materials. These conditions are specific to MOD sites and have been agreed centrally. Compliance with these terms and conditions is a MOD mandatory requirement and is the responsibility of the CO / HoE for the unit / establishment; and
- c. EA Visits to MOD Sites. The EA are authorised by MOD to carry out visits to premises where radioactive materials are held. These visits will only be carried out by arrangement with the CO / HoE. The EA will provide a written report to the CO / HoE following all visits which will highlight any areas of noncompliance. The CO / HoE should inform the RPA of any intended visits and the outcome of any EA inspection.

6. Security and the classification of the Notifications and Approvals documents are a MOD issue. Although the EA have a remit to regulate on the security of sources for civil industry, they are limited to offering advice in relation to MOD sites.

Parallel Arrangements - High Activity Sealed Radioactive Sources (HASS)

7. It is the responsibility of the CO / HoE to effectively manage HASS on their site in compliance with MOD policy.

8. Procedures for the control of HASS on MOD nuclear sites mirror those implemented by civil nuclear licensees and are regulated by the DNSR.

Radioactive Waste Legislation and Policy

Relevant Legislation

	BIND THE CROWN	DESCRIPTION	FURTHER INFORMATION
EPR16 (England and Wales)	Parallel arrangements: Memorandum of Understanding (MOU) between the EA and MOD	Provides a consolidated system of environmental permitting in England and Wales. Includes provisions for out of scope, exempt and permitted substances. Also includes provisions for High Activity Sealed Sources (HASS).	
EASR18	Parallel arrangements: Agreement between SEPA and MOD in place	Provides a consolidated system to manage the keeping and use, accumulation and disposal of radioactive substances in Scotland.	
RSA93 and associated exemption Orders and HASS05 (Northern Ireland)	Parallel arrangements	A system to manage the keeping and use of radioactive materials and the accumulation and disposal of radioactive waste.	
IRR17	✓	Imposes duties on employers to protect employees and other persons against ionising radiation arising from work with radioactive substances and other sources of ionising radiation. Impose certain duties on employees.	

1. RSA93, EPR16, EASR18 and HASS2005 (Northern Ireland) are not applicable to MOD. In accordance with the Secretary of State's Policy Statement on Health, Safety and the Environment MOD has put in place parallel arrangements that achieve outcomes that are, so far as reasonably practicable, at least as good.
2. The equivalent standards of control in place under EPR16 and EASR18 apply across MOD with the exception of MOD's nuclear authorised sites. In these cases, the control of non-mobile radioactive substances is regulated by DNSR. MoD Policy
3. Unless items can be disposed of under local regulations overseas with agreement of the country's relevant body, radioactive waste is to be returned to the UK and disposed of in accordance with UK legislation and the agreement of the UK regulators.

4. The MOD is committed to complying with legislation and, so far as is reasonably practicable, with national policies relating to the management of radioactive waste and decommissioning. Details of national policy on the management of radioactive waste can be found on the gov.uk website.

5. The key features of the UK Policy and legislation relating to the disposal of radioactive waste are noted below and the MOD policy position is made clear. It is expected that all CO / HoE in consultation and as advised by their RWA, will have considered these issues as a minimum.

UK Strategy for Radioactive Discharges

6. The MOD is bound by the national commitments in the UK Strategy for Radioactive Discharges 2009. This strategy recognises that, within the policy of progressive reduction, some flexibility will need to be maintained to safeguard other key Government objectives including the operational capabilities of the armed forces.

Discharges to the Environment

7. Waste owners and managers are to ensure the proactive publication of information about discharges of radioactive substance to the environment, as required by the “Environmental Information Regulations”.

8. It is MOD policy to provide information about radioactive discharges to the environment for inclusion in both the Environment Agency’s National Pollution Inventory, and the Radioactivity in Food and the Environment (RIFE) Report produced by the Food Standards Agency respectively.

UK Radioactive Waste Inventory

9. Waste owners within MOD are required to record the radioactive waste they hold and projected future radioactive waste arisings. This allows them to provide timely and accurate information on these matters to the organisation contracted by BEIS / Nuclear Decommissioning Authority (NDA) to produce the UK Radioactive Waste Inventory. This inventory provides information on the types and quantities of waste present in the UK. It allows the UK to meet its international reporting obligations.

Radioactive Waste Ownership

10. Because the SofS is accountable for and responsible for the safe management of Defence related nuclear wastes, it is generally MOD policy to retain title of Defence related nuclear waste. However, radioactive wastes generated outside the nuclear programmes are generally subject to fewer controls and therefore more disposal routes exist for this material. Consequently, MOD policy is that radioactive wastes outside the nuclear programmes should be disposed of as soon as possible and with a full transfer of title. Advice should be sought from a Radioactive Waste Adviser where the transfer of title of radioactive waste to another party is being considered, in order that advice on the legal implications can be sought (Euratom, IAEA treaty obligations etc.)

Non-Ionising Radiation Protection Legislation and Policy

1. Non-ionising (NIR) radiation covers a range of the electromagnetic spectrum which spans the ultraviolet region, through the visible light and radiofrequency region, to static fields. The common designations for the division of non-ionising radiation into named regions are shown in Table 1.
2. This section is not intended to be applied to the exposure of patients undergoing exposure to NIR for therapeutic or diagnostic reasons.

Relevant Legislation

	BIND THECROWN	Description
The Control of Artificial Optical Radiation at Work Regulations 2010	✓	Imposes the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (artificial optical radiation (AOR)). Applies to both coherent (laser) and non-coherent (broadband) optical ¹ radiation that is not of natural origin. The employer must assess all optical radiation exposures, both natural and artificial.
The Control of Electromagnetic Fields at Work Regulations 2016	✓	Imposes the minimum requirements for the protection of employees from risks to their health and safety arising, or likely to arise, from exposure to electromagnetic fields (0 Hz - 300 GHz). The duty is placed on the employer to assess an employee's potential exposure to electromagnetic fields with reference to the legal limits. An exemption within the regulations which allows the MOD to set alternative limits to those specified therein.

3. Other relevant legislation is as follows: The Health and Safety at Work etc Act 1974; the Management of Health and Safety at Work Regulations 1999 and the Health and Safety (Safety Signs and Signals) Regulations 1996.

MoD Policy

4. It is the responsibility of the CO / HoE to ensure the exposure of personnel to Artificial Optical Radiation (AOR) and Electro-Magnetic Frequency (EMF) conforms to the guidance supplied by the Radiological Protection Division of the Health Protection Agency wherever reasonably practicable. Such exposure should, in addition, be kept ALARP. Further guidance can be found in JSP 392 Vol 2 Leaflets 37 (Artificial Optical Radiation Safety) and Leaflet 35 (Electromagnetic Fields 0 Hz – 300 GHz).
5. There is an exemption in CEMFAWR16 which allows MOD to set alternative limits to those specified in Regulation 4. To reduce impact on operations and maintain interoperability with our NATO partners, MOD has chosen to adopt this disapplication. The limits used to demonstrate compliance with the legislation shall be those specified in the IEEE Standard for Military Workplaces – Force Health Protection Regarding Personnel Exposure to Electric, Magnetic and Electromagnetic Fields, 0 Hz to 300 GHz. This standard is known as IEEE Std C95.1-2345TM which is currently used by NATO countries on NATO operations.

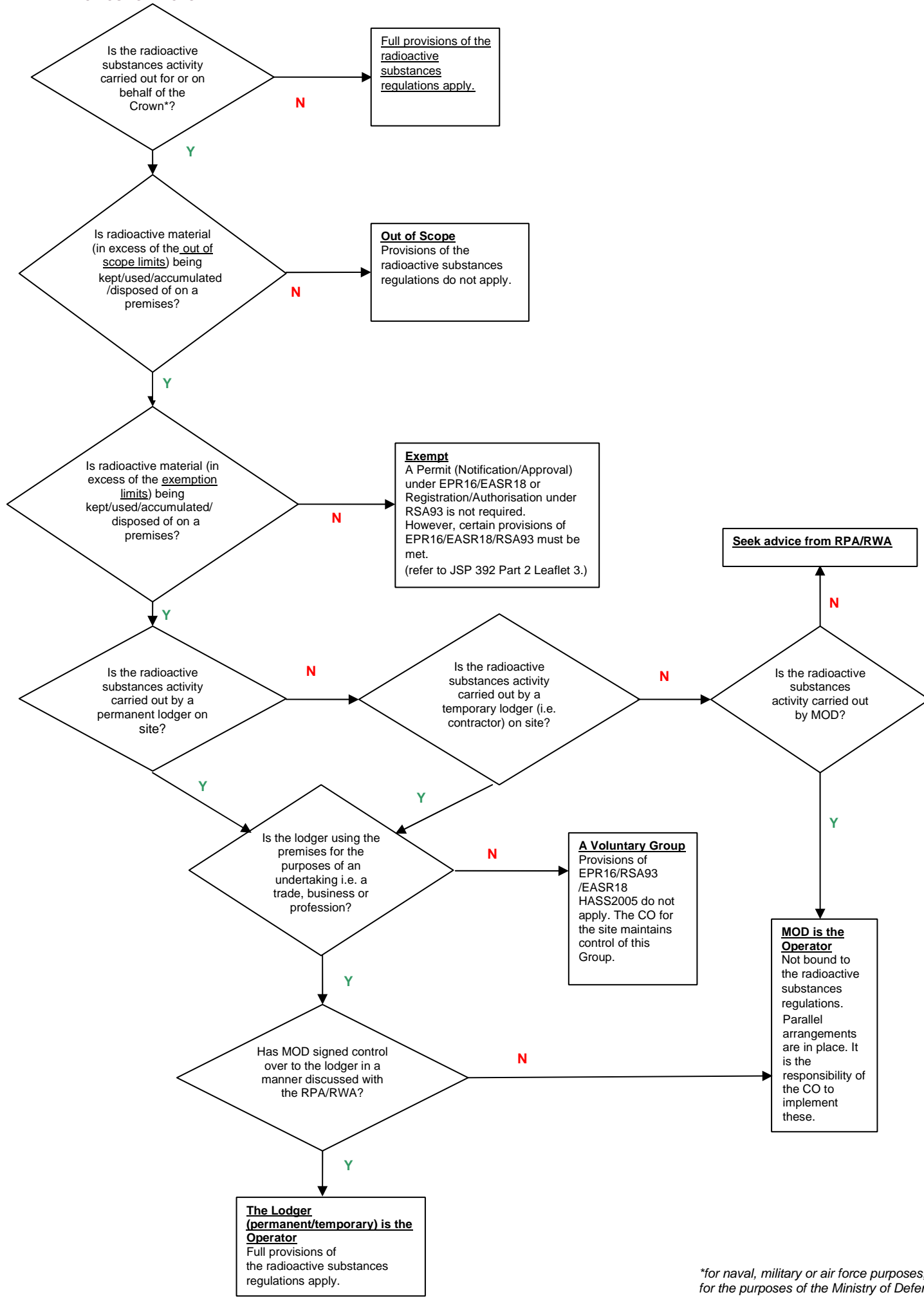
¹ Optical radiation is radiation between the wavelengths 100nm to 1mm, not all of this radiation is in the visible region of the spectrum

All other Regulations of CEMFAWR 16 apply.

Table 1 Nomenclature for non-ionising radiation

EM Spectrum Designations					
Non-ionising	Static fields	0 Hz	electromagnetic fields (EMF)		
	ELF	30 Hz			
		300 Hz			
	VLF	3 kHz			
		30 kHz			
	LF	300 kHz			
	MF	3 MHz			
	HF	30 MHz			
	VHF	300 MHz			
	UHF	3 GHz			
	SHF	30 GHz			
	EHF	300 GHz or 1 mm			
	IRC	3 µm		Infrared	
	IRB	1-4 µm			
	IRA	760 nm			
	Visible	400 nm		Vis	optical radiations
	UVA	315 nm			
	UVB	280 nm			
	UVC	100 nm			
	continuation of UVC	10 nm			
Ionising	X & γ rays	< 10 nm	X & γ rays		

ANNEX E – FLOWCHART THAT EXPLAINS THE APPLICATION OF THE RADIOACTIVE SUBSTANCES REGULATIONS (EPR16/EASR18/RSA93 AND HASS05) IN DIFFERENT CIRCUMSTANCES



*for naval, military or air force purposes, or for the purposes of the Ministry of Defence

2 - Radiation Protection Appointments and Training

Aim

1. This chapter defines the duties and the responsibilities for radiological protection of personnel within establishments and units.

Introduction

2. The Policy Statement on safety health and environmental protection in the MOD by the Secretary of State for Defence devolves duties through the line management chain. As a result, the Commanding Officer / Head of Establishment (CO / HoE) is a duty holder for environmental and health and safety matters, including radiation protection. The CO / HoE is required to make a statement detailing their organisation and arrangements in these areas. The appointments detailed below will be part of this statement.

Statutory Appointments

Relevant Doctor

3. In general, where classified persons are employed, the CO / HoE is to ensure that an appointed doctor or employment medical adviser (i.e. fully registered medical practitioner) is available to carry out the duties of the Relevant Doctor under the Ionising Radiations Regulations 2017 (IRR17). The role of the Relevant Doctor (as Appointed Doctor) and their appointment is described in Leaflet 6.

Radiation Protection Adviser

4. A Radiation Protection Adviser (RPA) will advise the CO / HoE on compliance with national legislation and MOD standards etc. relating to radiation protection of individuals. The CO / HoE has a duty to consult the RPA on matters which are set out in Schedule 4 of IRR17. Sites working within MOD's nuclear weapons and nuclear propulsion programmes will have appointed local RPAs. Otherwise, Top Level Budget (TLB) Holders will have made arrangements for RPA advice to be available. The RPA for most units and establishments outside the nuclear programmes is the Dstl RPA Body who have specialist expertise in advising in situations where MOD have exemptions, derogations or dis-applications from legislation or where UK legislation does not apply.

Radiation Protection Supervisor

5. Where supervised or controlled areas are designated, Radiation Protection Supervisors (RPS) are to be appointed, in writing, by the employer to enable work with ionising radiation to be carried out in accordance with legislation.

Radioactive Waste Adviser

6. The CO / HoE has a duty to consult a Radioactive Waste Advisor (RWA) to ensure compliance with the requirements of any Approval / Authorisation issued under radioactive waste legislation. Sites working within MOD's nuclear weapons and nuclear propulsion

programmes will have appointed local RWAs. Otherwise, TLBs will have made arrangements for RWA advice to be available. The RWA for most units and establishments outside the nuclear programmes is a member of the Dstl RPA Body who have specialist expertise in advising in situations where MOD have exemptions, derogations or dis-applications from legislation or where UK legislation does not apply.

Dosimetry and Dosimetry Record Keeping Services

7. Where IRR17 requires it, a Health and Safety Executive (HSE) Approved Dosimetry Service (ADS) must be used to undertake dose assessments using suitable monitors. It is a requirement of IRR17 that the records of such assessments are kept by an HSE Approved Dosimetry Record Keeping Service (ADRKS). Generally, arrangements for this will be made through the TLB. Any arrangements must ensure that ADS records are retained indefinitely and will be readily available for medicolegal purposes.

MoD Appointments

Radiation Safety Officer

8. The role of the Radiation Safety Officer (RSO) is analogous to that of the health and safety assistant appointment made under the Management of Health and Safety at Work Regulations 1999. Depending upon workload, competence etc., one or more individuals may be appointed to these roles. Appointments are to be made in writing.

Workplace Supervisor

9. Workplace Supervisors (WPSs) are appointed, where it is unnecessary to appoint an RPS, to undertake duties to ensure that work with sources of ionising radiation is carried out in accordance with legislation, the requirements of this publication and local orders for radiation safety. WPSs may be appointed to supervise radioactive materials (RAM), X-ray equipment (X-Ray) or radon (Radon) (or a combination of the above) that does not require the setting up of designated areas. Appointments are to be made in writing. Further information on this appointment is contained in Leaflet 39.

Qualified Person

10. The employer of an establishment which has its own ionising radiation protection instrument test house is to appoint in writing one or more qualified persons to carry out or to supervise the examination and testing of ionising radiation protection instruments in accordance with JSP 425, Examination and Testing of Ionising Radiation Detection and Monitoring Equipment and IRR17. Qualified persons appointees are to receive the qualification and training to meet competencies stated in DStan 05-055 Part 3. Job specific training requirements are to be specified in local orders.

Employees

11. With regards to Radiation Protection employees also have the duties, as described in Regulation 35 of IRR17 and paragraphs 619 and 620 of the Approved Code of Practice and guidance.

Provision of Suitable Training

12. The Management of Health and Safety at Work Regulations 1999 (MHSWR1999) requires every employer to ensure that their employees are provided with adequate health and safety training on being first recruited and on being exposed to new risks. This training is to be repeated periodically where appropriate. IRR17 requires employers to ensure that employees engaged in work with ionising radiation are given appropriate training in the field of radiation protection.
13. CO and HoE are to ensure that the training requirements, including refresher training, for all radiation protection appointments and employees engaged in work with ionising radiation are specified in local orders. It is also to be ensured that visitors who have access to ionising radiations are given suitable information, instruction and training.
14. The training specifications may draw directly from the requirements of this publication, from guidance issued by the regulators and from the advice of a suitable RPA. Training may often include generic training courses delivered by MOD or an external provider, but it should also include elements specific to the task or job to be carried out and to the hazards and risks concerned. Training for specific posts and appointments is detailed in Part 2, Leaflet 15.
15. A record is to be kept of the training undertaken for two years following termination of the appointment.

3 - Record Keeping

Introduction

1. MOD Policy on records is contained in JSP 441: Information, Knowledge, Digital and Data in Defence and the requirements of that JSP are reflected in this Chapter. In the event of a conflict in requirements, the position in JSP 441 should be adopted.
2. Notwithstanding the statutory requirements, the retention of records is essential to allow MOD to defend itself against a variety of claims. The Annex details the minimum records that should be retained. Where there is doubt, records should be retained rather than destroyed.
3. The keeping of many radiation records is a statutory requirement and within legislation the timescales relating to the records which have to be kept are also specified. MOD policy on record keeping is to keep records for the statutory period unless otherwise specified in this chapter. For ships, units and establishments which are not part of the nuclear programmes further detail is given in Part 2 of this JSP.

Dosimetry Records

4. There is a statutory requirement for radiation dose records to be kept in accordance with the Ionising Radiations Regulations 2017, Radiation (Emergency Preparedness and Public Information) Regulations 2019 and Ionising Radiation (Medical Exposure) Regulations 2017, their associated Approved Codes of Practice and Guidance Notes.

Record Retention

5. MOD policy is that all MOD units, including MOD Agencies, are to retain, both for service and civilian personnel, all primary records (see Annex to this chapter) except those records held on their behalf by the Approved Dosimetry Service (ADS).
6. Issue lists and laboratory certificates are to be kept for the period specified by the ADS. Primary and ADS records form an important part of MOD's response to Parliamentary Enquiries and medico-legal claims and should be readily available and retained for as long as is reasonably practicable.
7. Similarly, all MOD units, including MOD Agencies, are to retain the supporting documents (see Annex to this chapter) for the statutory laid down periods. At the end of these periods these organisations will undertake an assessment of the relevance of retaining these documents for supporting or refuting future claims. The Radiation Protection Adviser (RPA), Radioactive Waste Adviser (RWA) and ADS should be consulted where doubt exists as to the future relevancy of retained documents. Equally the originating author or its successor organisation should be consulted regarding the relevance of retaining associated historic documents. It is expected that in most circumstances the decision will be to retain the documents. In such circumstances such documents are to be archived following standard MOD procedures. Where on the basis of a risk assessment a decision is taken to destroy such records, the Commanding Officer or Head of Establishment (CO / HoE), may be held accountable for this action, in the event of a claim arising against MOD for work undertaken in their business area for which records no longer exist.

8. Record keeping requirements in respect to nuclear programme areas are detailed in JPS 518 and JSP 538.

MoD Agencies

9. MOD Agencies, including the Defence and Science Technology Laboratory (Dstl), will hold both primary and supporting historic documents (see Annex to this chapter) for their predecessor organisations. These documents become the responsibility of these Agencies. Agencies may arrange by mutual agreement and the transfer of financial provision to other MOD business areas for these areas to take over their responsibilities. This will be achieved by written agreement.

Privatised Companies

10. Privatised companies and Government owned contractor operated sites e.g. Royal Dockyards and AWE Aldermaston, often hold on to their site's individual historic radiation dose records, other associated documents relating to their work, administrative arrangements and other records prior to vesting day. Such companies are under contract to provide services to MoD business areas. These business areas, or their successors where they cease to exist, are the organisations responsible for the companies' maintenance of such records, usually through the contract, and for their financial provision. Such companies may arrange by mutual agreement and the transfer of financial provision for other MoD business areas to take over such responsibility.

Closure of Sites

11. The following information must be made available, if not previously made available, to Defence Infrastructure Organisation at handover of a site following closure. The CO / HoE is responsible for ensuring that the following documents are provided as appropriate:

- a. radioactive substances clearance certificates relating to the site;
- b. reports pertinent to the storage of radioactive sources on site;
- c. radiological survey reports, internal and external to buildings;
- d. reports pertinent to historical radiological contamination remediations, internal and external to buildings, and the final destination of any remediated radioactive material be it on, or off site; and
- e. reports relating to on-site disposal of radiological sources including landfilling and burning grounds.

12. For sites that are to close and whose function is not to be transferred to another MOD organisation or Agency, all radiation records other than those already held by the ADRKS are to be sent to the MOD archive, as is the case with other preserved establishment documents. Dstl ESD and the Director Judicial Engagement Policy, Common Law Claims and Policy –Claims (DJEP-CLCP-Claims) are to be informed when this occurs and they are to be supplied with the references provided by the archives so documents can be withdrawn from the archives at a future date should they be required.

13. DJEP-CLCP-Claims maintain a Dosimetry Index and Database (DOSIND) run by Dstl CBR Division. This is for electronic storage of the radiation records of most significance. Priority will be given to primary and secondary documents as listed in Annex A from those organisations from whom most claims have been made under the Nuclear Industry Compensation Scheme for Radiation Linked Diseases.

Records of Interest – Primary and Secondary (Supporting) Records

Primary Records

1. Primary records are those that will be required to support claims brought under the Compensation Scheme for Radiation Linked Diseases, war pensions, personnel radiation protection litigation and radiation worker counselling. The list below includes examples but is not exhaustive:

- a. records of personal dose generated from locally issued dosimetry;
- b. dose information for individuals working under a written system of work, or equivalent, based upon workplace dose rates (e.g. radiation surveys of controlled and supervised areas) and length of exposure;
- c. whole body monitoring results not entered into the ADRKS record;
- d. accident and incident investigation reports made for the purposes of regulations 26 and 31 of the Ionising Radiations Regulations 2017;
- e. accident and incident investigation reports not covered by IRR17 which occur in a controlled or supervised areas;
- f. summaries produced in support of the compensation scheme, war pensions or radiation worker counselling;
- g. radon assessments in radon affected areas that may be used to estimate the radiation exposure of members of the MOD workforce;
- h. health registers; and
- i. individual personal radiation dose records for classified and non-classified workers generated by an Approved Dosimetry Service (ADS) and maintained by them.

Secondary (Supporting) Records

2. Supporting documents are those which may be needed for claims brought against MOD through the courts by workers and former works claiming ill health which they attribute to their occupational exposure to ionising radiation. The list below includes the following records which is not exhaustive:

- a. site and process risk assessments, their reviews and updates or amendments;
- b. local rules and / or local orders;
- c. records of controlled and supervised areas;
- d. radiation and contamination monitoring surveys in such areas;
- e. safe operating procedures, permits to work and Safe Systems of Work (and equivalent);

- f. maintenance and examination and testing records including ventilation, respiratory and other personal protective equipment;
- g. radioactive waste disposal; and
- h. environmental monitoring records.