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STATUTORY INSTRUMENTS

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**2017 No. 1075**

**HEALTH AND SAFETY**

**The Ionising Radiations Regulations 2017**

*Made* - - - - 27th November 2017  
*Laid before Parliament* 30th November 2017  
*Coming into force* - - 1st January 2018

The Secretary of State makes these Regulations in exercise of the powers conferred by sections 15(1), (2), (3)(a) and (c), (4)(a), (5)(b), (6)(b) and (9), 18(2)(za), 43(2), (4), (5) and (6), 52(2) and (3), 80(1) and 82(3)(a) of, and paragraphs 1(1) and (2), 3 to 9, 11, 13, 14, 15(1), 16, 20 and 21(a) and (b) of Schedule 3 to, the Health and Safety at Work etc. Act 1974 <sup>M1</sup> (“the 1974 Act”).

The Secretary of State makes these Regulations for the purpose of giving effect without modifications to proposals submitted by—

- (a) the Health and Safety Executive under section 11(3) <sup>M2</sup> of the 1974 Act after consulting in accordance with section 50(3) <sup>M3</sup> of that Act; and
- (b) the Office for Nuclear Regulation under section 81(1)(a)(iv) of the Energy Act 2013 <sup>M4</sup>.

It appears to the Secretary of State that—

- (a) the modifications set out in paragraphs 1, 2, 6, 8, 10, 11, 12, 15 and 17 of Schedule 9 are expedient pursuant to section 80(1) of the 1974 Act; and
- (b) it is not appropriate to consult bodies in respect of such modifications in accordance with section 80(4) of that Act.

**Marginal Citations**

**M1** 1974 c. 37. Section 15(1) was substituted by paragraph 6 of Schedule 15 to the [Employment Protection Act 1975 \(c. 71\)](#) (“the 1975 Act”) and amended by [S.I. 2002/794](#). Section 15(2) and (3)(c) was amended by paragraph 5 of Schedule 12 to the [Energy Act 2013 \(c. 32\)](#) (“the 2013 Act”). Section 15(4)(a) was amended by [S.I. 2008/960](#). Section 18(2)(za) was inserted by paragraph 6 of Schedule 12 to the 2013 Act. Sections 43(6) and 52(3) were substituted by paragraphs 12 and 17 respectively of Schedule 15 to the 1975 Act and amended by [S.I. 2002/794](#).

**M2** [Section 11](#) was substituted by article 5 of [S.I. 2008/960](#).

**M3** [Section 50\(3\)](#) was amended by paragraph 16 of Schedule 15 to the [Employment Protection Act 1975 \(c.71\)](#), [articles 3](#) and 16 of [S.I. 2008/960](#), [paragraphs 4](#) and 6 of Schedule 7 to the [Health and Social Care Act 2012 \(c.7\)](#), and paragraphs 1 and 11 of Schedule 12 to the [Energy Act 2013 \(c. 32\)](#).

**M4** [2013 c. 32](#).

## PART 1

### PRELIMINARY

#### Citation and commencement

- 1.—(1) These Regulations may be cited as the Ionising Radiations Regulations 2017.
- (2) They come into force on 1st January 2018.

#### Interpretation

- 2.—(1) In these Regulations—

“the 1974 Act” means the Health and Safety at Work etc. Act 1974;

“accelerator” means an apparatus or installation in which particles are accelerated and which emits ionising radiation with an energy higher than 1MeV;

“appointed doctor” means a registered medical practitioner who meets such recognition criteria as may from time to time be specified in writing by the Executive <sup>M5</sup>;

“approved” means approved for the time being in writing for the purposes of these Regulations by the Executive or the ONR (as the case may be) and published in such form as that body considers appropriate;

“approved dosimetry service” means a dosimetry service approved in accordance with regulation 36;

“authorised defence site” has the meaning given by regulation 2(1) of the Health and Safety (Enforcing Authority) Regulations 1998 <sup>M6</sup>;

“calendar year” means a period of 12 months beginning with the 1st January;

“classified outside worker” means a classified person who carries out services in the controlled area of any employer (other than the controlled area of their own employer);

“classified person” means—

- (a) a person designated as such pursuant to regulation 21(1); and
- (b) in the case of a classified outside worker employed by an undertaking in Northern Ireland or in another member State, a person who has been designated as a category A exposed worker within the meaning of Article 40 of the Directive;

“carers and comforters” means individuals knowingly and willingly incurring an exposure to ionising radiation by helping, other than as part of their occupation, in the support and comfort of individuals undergoing or having undergone medical exposure;

“contamination” means the unintended or undesirable presence of radioactive substances on surfaces or within solids, liquids or gases or on the human body, and “contaminated” is to be construed accordingly;

“controlled area” means—

- (a) in the case of an area situated in Great Britain, an area which has been so designated in accordance with regulation 17(1); and
- (b) in the case of an area situated in Northern Ireland or in another member State, an area subject to special rules for the purposes of protection against ionising radiation and to which access is controlled as specified in Article 37 of the Directive;

“the Directive” means Council Directive 2013/59/Euratom <sup>M7</sup> laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation,

and repealing Directives 89/618/Euratom<sup>M8</sup>, 90/641/Euratom<sup>M9</sup>, 96/29/Euratom<sup>M10</sup>, 97/43/Euratom<sup>M11</sup> and 2003/122/Euratom<sup>M12</sup>;

“dose” means, in relation to ionising radiation, any dose quantity or sum of dose quantities mentioned in Schedule 3;

“dose assessment” means the dose assessment made and recorded by an approved dosimetry service in accordance with regulation 22;

“dose constraint” means a constraint set on the prospective doses of individuals which may result from a given radiation source;

“dose limit” means, in relation to persons of a specified class, the limit on effective dose or equivalent dose specified in Schedule 3 in relation to a person of that class;

“dose rate” means, in relation to a place, the rate at which a person or part of a person would receive a dose of ionising radiation from external radiation if that person were at that place, being a dose rate at that place averaged over one minute;

“dose record” means, in relation to a person, the record of the doses received by that person as a result of that person's exposure to ionising radiation, being the record made and maintained on behalf of their employer by the approved dosimetry service in accordance with regulation 22;

“employment medical adviser” means an employment medical adviser appointed under section 56 of the 1974 Act;

“external radiation” means, in relation to a person, ionising radiation coming from outside the body of that person;

“extremities” means a person's hands, forearms, feet and ankles;

“health record” means, in relation to an employee, the record of medical surveillance of that employee maintained by the employer in accordance with regulation 25(3);

“high-activity sealed source” means a sealed source for which the quantity of the radionuclide is equal to or exceeds the relevant quantity value set out in Part 4 of Schedule 7;

“industrial irradiation” means the use of ionising radiation to sterilise, process or alter the structure of products or materials;

“industrial radiography” means the use of ionising radiation for non-destructive testing purposes where an image of the item under test is formed (but excluding any such testing which is carried out in a cabinet which a person cannot enter);

“internal radiation” means, in relation to a person, ionising radiation coming from inside the body of that person;

“ionising radiation” means the transfer of energy in the form of particles or electromagnetic waves of a wavelength of 100 nanometres or less or a frequency of  $3 \times 10^{15}$  hertz or more capable of producing ions directly or indirectly;

“local rules” means rules made pursuant to regulation 18(1);

“maintained”, where the reference is to maintaining plant, apparatus, equipment or facilities, means maintained in an efficient state, in efficient working order and good repair;

“medical exposure” means the exposure to ionising radiation of—

- (a) patients and asymptomatic individuals as part of their own medical diagnosis or treatment;
- (b) individuals as part of health screening programmes;
- (c) patients or other persons voluntarily participating in medical or biomedical, diagnostic or therapeutic, research programmes;
- (d) individuals undergoing non-medical imaging using medical radiological equipment;

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*Status: Point in time view as at 01/01/2018.*

*Changes to legislation: There are currently no known outstanding effects for the The Ionising Radiations Regulations 2017. (See end of Document for details)*

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“member State” means a member State of the European Union;

“new nuclear build site” has the meaning given by regulation 2A of the Health and Safety (Enforcing Authority) Regulations 1998;

“non-classified outside worker” means a person who is not a classified person who carries out services in the supervised or, pursuant to regulation 19(3)(c), controlled area of any employer (other than the supervised or controlled area of their own employer);

“nuclear premises” means premises which are or are on—

- (a) a GB nuclear site (within the meaning given by section 68 of the Energy Act 2013 <sup>M13</sup>);
- (b) an authorised defence site;
- (c) a new nuclear build site; or
- (d) a nuclear warship site;

“nuclear warship site” has the meaning given by regulation 2B of the Health and Safety (Enforcing Authority) Regulations 1998;

“the ONR” means the Office for Nuclear Regulation;

“outside worker” means a classified outside worker and a non-classified outside worker;

“overexposure” means any exposure of a person to ionising radiation to the extent that the dose received by that person causes a dose limit relevant to that person to be exceeded or, in relation to regulation 27(2), causes a proportion of a dose limit relevant to any employee to be exceeded;

“practice” means work involving—

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

which can increase the exposure of individuals to ionising radiation;

“radiation accident” means an accident where immediate action would be required to prevent or reduce the exposure to ionising radiation of employees or any other persons;

“radiation generator” means a device capable of generating ionising radiation such as x-rays, neutrons, electrons or other charged particles;

“radiation passbook” means—

- (a) in the case of a classified outside worker employed by an employer in Great Britain—
  - (i) a passbook approved by the Executive for the purpose of these Regulations; or
  - (ii) a passbook to which paragraph 9 of Schedule 8 (transitional provisions) applies; and
- (b) in the case of a classified outside worker employed by an employer in Northern Ireland or in another member State, a passbook authorised by the competent authority for Northern Ireland or that member State, as the case may be;

“radiation protection adviser” means an individual who, or a body which, meets such criteria of competence as may from time to time be specified in writing by the Executive;

“radioactive material” means material incorporating radioactive substances;

“radioactive source” means an entity incorporating a radioactive substance (or substances) for the purpose of utilising the radioactivity of that substance (or substances);

“radioactive substance” means any substance which contains one or more radionuclides whose activity cannot be disregarded for the purposes of radiation protection;

“relevant doctor” means an appointed doctor or an employment medical adviser;

“sealed source” means a radioactive source whose structure is such as to prevent, under normal conditions of use, any dispersion of radioactive substances into the environment, but it does not include any radioactive substance inside a nuclear reactor or any nuclear fuel element;

“supervised area” means an area which has been so designated by the employer in accordance with regulation 17(3);

“trainee” means a person aged 16 years or over (including a student) who is undergoing instruction or training which involves operations which would, in the case of an employee, be work with ionising radiation;

“transport” means, in relation to a radioactive substance, carriage of that substance on a road within the meaning of, in relation to England and Wales, section 192 of the Road Traffic Act 1988 <sup>M14</sup> and, in relation to Scotland, section 151 of the Roads (Scotland) Act 1984 <sup>M15</sup> or through another public place (whether on a conveyance or not), or by rail, inland waterway, sea or air and, in the case of transport on a conveyance, a substance is deemed as being transported from the time that it is loaded onto the conveyance for the purpose of transporting it until it is unloaded from that conveyance, but a substance is not to be considered as being transported if—

- (a) it is transported by means of a pipeline or similar means; or
- (b) it forms an integral part of a conveyance and is used in connection with the operation of that conveyance;

“work with ionising radiation” means work to which these Regulations apply by virtue of regulation 3(1).

(2) In these Regulations any reference to—

- (a) an employer includes a reference to a self-employed person and any duty imposed by these Regulations on an employer in respect of that employer's employee extends to a self-employed person in respect of themselves;
- (b) an employee includes a reference to—
  - (i) a self-employed person, and
  - (ii) a trainee who but for the operation of this sub-paragraph and paragraph (3) would not be classed as an employee;
- (c) exposure to ionising radiation is a reference to exposure to ionising radiation arising from work with ionising radiation;
- (d) a person entering, remaining in or working in a controlled or supervised area includes a reference to any part of a person entering, remaining in or working in any such area.

(3) For the purposes of these Regulations and Part I of the 1974 Act—

- (a) the word “work” is extended to include any instruction or training which a person undergoes as a trainee and the meaning of “at work” is extended accordingly; and
- (b) a trainee, while undergoing instruction or training in respect of work with ionising radiation, is to be treated as the employee of the person whose undertaking (whether for profit or not) is providing that instruction or training and that person is to be treated as the employer of that trainee except that the duties to the trainee imposed upon the person providing instruction or training will only extend to matters under the control of that person.

(4) In these Regulations, where reference is made to a quantity or concentration specified in Schedule 7, that quantity or concentration is to be treated as being exceeded if—

- (a) where only one radionuclide is involved—

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*Changes to legislation: There are currently no known outstanding effects for the The Ionising Radiations Regulations 2017. (See end of Document for details)*

- (i) the quantity of that radionuclide exceeds the quantity specified in the appropriate entry in Parts 1, 2 or 4 of Schedule 7; or
  - (ii) the concentration of that radionuclide exceeds the concentration specified in the appropriate entry in Parts 1 or 2 of Schedule 7; or
  - (b) where more than one radionuclide is involved, the quantity or concentration ratio calculated in accordance with Part 3 of Schedule 7 exceeds one.
- (5) Nothing in these Regulations is to be construed as preventing a person from entering or remaining in a controlled area or a supervised area where that person enters or remains in any such area—
- (a) in the due exercise of a power of entry conferred on that person by or under any enactment; or
  - (b) for the purpose of undergoing a medical exposure.
- (6) In these Regulations—
- (a) any reference to an effective dose means the sum of the effective dose to the whole body from external radiation and the committed effective dose from internal radiation; and
  - (b) any reference to equivalent dose to a human tissue or organ includes the committed equivalent dose to that tissue or organ from internal radiation.

#### **Marginal Citations**

- M5** “The Executive” means the Health and Safety Executive, established by section 10 (as amended by articles 3 and 4 of [S.I. 2008/960](#)) of the 1974 Act.
- M6** [S.I. 1998/494](#), amended by [S.I. 2014/469](#); there are other amending instruments but none is relevant.
- M7** OJ No L 13, 17.1.14, p1-73.
- M8** OJ No L 357, 7.12.89, p31-34.
- M9** OJ No L 349, 13.12.90, p21-25.
- M10** OJ No L 159, 29.6.96, p1-114.
- M11** OJ No L 180, 9.7.97, p22-27.
- M12** OJ No L 346, 31.12.03, p57-64.
- M13** [2013 c. 32](#).
- M14** [1988 c. 52](#).
- M15** [1984 c. 54](#).

#### **Application**

3.—(1) Subject to the provisions of this regulation and to regulation 5(1), these Regulations apply to—

- (a) any practice; and
- (b) any work (other than a practice) carried on in an atmosphere containing radon 222 gas at an annual average activity concentration in air exceeding 300 Bq m<sup>-3</sup>.

(2) The following regulations do not apply where the only work being undertaken is that referred to in paragraph (1)(b), namely regulations 24, 28 to 31, 33 and 34.

(3) The following regulations do not apply in relation to persons undergoing medical exposures, namely regulations 8, 9, 12, 17 to 19, 24, 26, 32(1) and 35(1).

(4) Regulation 12 does not apply in relation to carers and comforters.

(5) In the case of a classified outside worker (working in a controlled area situated in Great Britain) employed by an employer established in Northern Ireland or in another member State, it is

sufficient compliance with regulation 22 (dose assessment and recording) and regulation 25 (medical surveillance) if the employer complies with—

- (a) where the employer is established in Northern Ireland, regulations 21 and 24 of the Ionising Radiations Regulations (Northern Ireland) 2000 <sup>M16</sup> or any other provision made for the purpose of implementing the relevant parts of Chapter VI of the Directive in Northern Ireland; or
- (b) where the employer is established in another member State, the legislation in that State implementing the relevant parts of Chapter VI of the Directive where such legislation exists.

**Marginal Citations**

**M16** S.R. (NI) 2000 No 375.

**Duties under the Regulations**

4.—(1) Any duty imposed by these Regulations on an employer in respect of the exposure to ionising radiation of persons other than that employer's employees is imposed only in so far as the exposure of those persons to ionising radiation arises from work with ionising radiation undertaken by that employer.

(2) Duties under these Regulations imposed upon the employer are also imposed upon any person who is—

- (a) a mine operator; or
- (b) the operator of a quarry,

in so far as those duties relate to the mine or part of the mine of which that person is the mine operator or the quarry of which that person is the operator and to matters within that person's control.

(3) Subject to regulations 5(1)(c), 6(2)(c) and (d) and 7(1)(h), duties under these Regulations imposed upon the employer are imposed on the holder of a nuclear site licence under the Nuclear Installations Act 1965 <sup>M17</sup> in so far as those duties relate to the licensed site.

(4) In this regulation—

- (a) “mine operator” has the meaning given by regulation 2(1) of the Mines Regulations 2014 <sup>M18</sup>,
- (b) “operator”, in relation to the operator of a quarry, has the meaning given by regulation 2(1) of the Quarries Regulations 1999 <sup>M19</sup>.

**Marginal Citations**

**M17** 1965 c. 57; sections 1, 3 and 5 were amended by paragraphs 16 to 18 and 20 of Schedule 12 to the Energy Act 2013 (c. 32). There are other amendments not relevant to these Regulations.

**M18** S.I. 2014/3248.

**M19** S.I. 1999/2024, to which there are amendments not relevant to these Regulations.

## PART 2

### GENERAL PRINCIPLES AND PROCEDURES

#### Notification of certain work

5.—(1) This regulation applies to work with ionising radiation except—

- (a) work arising from the carrying out of a registrable practice under regulation 6 or a specified practice requiring consent under regulation 7;
- (b) work specified in Schedule 1; and
- (c) work carried on at a site licensed under section 1 of the Nuclear Installations Act 1965.

(2) Subject to paragraph 3 of Schedule 8 (which relates to transitional provisions), an employer must not carry out work with ionising radiation to which this regulation applies unless before the first occasion of commencing such work since the coming into force of this regulation the employer has notified that work to the appropriate authority in accordance with the notification procedure approved by the appropriate authority from time to time.

(3) Where an employer has notified work in accordance with paragraph (2), the appropriate authority may, by notice in writing, require that employer to provide such additional particulars of that work as the appropriate authority may reasonably require in connection with the notification, and in such a case the employer must provide those particulars by such time as is specified in the notice or by such other time as the appropriate authority may subsequently agree.

(4) A notice under paragraph (3) may require the employer to notify the appropriate authority of any of those additional particulars before each occasion on which the employer commences work with ionising radiation.

(5) Where an employer has notified work in accordance with this regulation and subsequently ceases that work, or makes a material change in the work which would affect the particulars provided to the appropriate authority in connection with the notification, the employer must immediately notify the appropriate authority of that cessation or material change.

(6) In this regulation “appropriate authority” means—

- (a) in relation to work carried on exclusively or primarily on premises which are or are on—
  - (i) an authorised defence site;
  - (ii) a new nuclear build site;
  - (iii) a nuclear warship site,the ONR;
- (b) otherwise, the Executive.

#### Registration of certain practices

6.—(1) For the purposes of this regulation, all practices are registrable practices except those listed in paragraph (2).

(2) The following practices are not registrable practices—

- (a) a practice solely involving work with ionising radiation to which Schedule 1 applies;
- (b) a specified practice (within the meaning of regulation 7(1));
- (c) the operation or decommissioning of any nuclear installation;
- (d) the operation, decommissioning or closure of any facility for the long-term storage or disposal of radioactive waste (including facilities managing radioactive waste for this



purpose) where such facility is situated on a site licensed under section 1 of the Nuclear Installations Act 1965;

- (e) any practice involving radioactive material where the amount of the radioactive material does not exceed 1,000kg and the activity concentration value of the radioactive substance in that material does not exceed the value specified in column 4 of Part 1 of Schedule 7 (for artificial radionuclides and naturally occurring radionuclides which are processed for their radioactive, fissile or fertile properties) or column 4 of Part 2 of Schedule 7 (for naturally occurring radionuclides which are not processed for their radioactive, fissile or fertile properties);
- (f) any practice involving radioactive material where the amount of the radioactive material exceeds 1,000kg and the activity concentration value of the radioactive substance in that material does not exceed the value in column 2 of Part 1 of Schedule 7 (for artificial radionuclides and naturally occurring radionuclides which are processed for their radioactive, fissile or fertile properties) or column 2 of Part 2 of Schedule 7 (for naturally occurring radionuclides which are not processed for their radioactive, fissile or fertile properties).

(3) Subject to paragraph 5 of Schedule 8 (which relates to transitional provisions), an employer must not carry out a registrable practice unless that employer has applied for, and has been issued with, a registration in connection with the practice by the appropriate authority.

(4) An employer applying for a registration under paragraph (3) must provide—

- (a) such information regarding the practice as is required by the registration procedure approved by the appropriate authority from time to time; and
- (b) upon notice in writing by the appropriate authority, such other information relating to the practice as the appropriate authority may reasonably require in connection with the registration.

(5) A registration under paragraph (3) may be issued subject to conditions (which may include a limit of time) and may be revoked in writing at any time.

(6) Where an employer has registered a practice in accordance with this regulation and subsequently ceases to carry out that practice, or makes a material change to the practice which would affect the particulars provided to the appropriate authority in connection with the registration, the employer must immediately notify the appropriate authority of that cessation or material change.

(7) An employer who is aggrieved by—

- (a) a decision of the appropriate authority refusing to issue a registration under paragraph (3) or revoking a registration under paragraph (5); or
- (b) the terms of any conditions attached to a registration under paragraph (5),

may appeal to the Secretary of State.

(8) Sub-sections (2) to (6) of section 44 of the 1974 Act apply for the purposes of paragraph (7) as they apply to an appeal under section 44(1) of that Act.

(9) The Health and Safety Licensing Appeals (Hearings Procedure) Rules 1974<sup>M20</sup>, as respects England and Wales, and the Health and Safety Licensing Appeals (Hearings Procedure) (Scotland) Rules 1974<sup>M21</sup>, as respects Scotland, apply to an appeal under paragraph (7) as they apply to an appeal under sub-section (1) of section 44 of the 1974 Act, but with the modification that references to a licensing authority are to be read as references to the appropriate authority.

(10) In this regulation—

“appropriate authority” means—

- (a) in relation to practices carried out exclusively or primarily on nuclear premises, the ONR;
- (b) otherwise, the Executive;

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*Changes to legislation: There are currently no known outstanding effects for the The Ionising Radiations Regulations 2017. (See end of Document for details)*

“nuclear installation” has the meaning given by regulation 26(1) of the Nuclear Installations Act 1965.

#### **Marginal Citations**

**M20** S.I. 1974/2040.

**M21** S.I. 1974/2068.

### **Consent to carry out specified practices**

- 7.—(1) In this regulation a “specified practice” means any of the following practices—
- (a) the deliberate administration of radioactive substances to persons and, in so far as the radiation protection of persons is concerned, animals for the purpose of medical or veterinary diagnosis, treatment or research;
  - (b) the exploitation and closure of uranium mines;
  - (c) the deliberate addition of radioactive substances in the production or manufacture of consumer products or other products, including medicinal products;
  - (d) the operation of an accelerator (except when operated as part of a practice within subparagraph (e) or (f) below and except an electron microscope);
  - (e) industrial radiography;
  - (f) industrial irradiation;
  - (g) any practice involving a high-activity sealed source (other than one within subparagraph (e) or (f) above);
  - (h) the operation, decommissioning or closure of any facility for the long-term storage or disposal of radioactive waste (including facilities managing radioactive waste for this purpose) but not any such facility situated on a site licensed under section 1 of the Nuclear Installations Act 1965;
  - (i) practices discharging significant amounts of radioactive material with airborne or liquid effluent into the environment.
- (2) Subject to paragraph 6 of Schedule 8 (which relates to transitional provisions), an employer must not carry out a specified practice unless that employer has applied for, and has been granted, a consent to carry out the practice by the appropriate authority.
- (3) An employer applying for a consent under paragraph (2) must provide—
- (a) such of the information set out in Schedule 2 as the appropriate authority may specify from time to time as necessary to determine an application for consent; and
  - (b) upon notice in writing by the appropriate authority, such other information relating to the practice as the appropriate authority may reasonably require in connection with the application for consent.
- (4) A consent under paragraph (2) may be granted subject to conditions (which may include a limit of time) and may be revoked in writing at any time.
- (5) Where an employer has been granted consent under this regulation to carry out a practice and subsequently ceases to carry out that practice, or makes a material change to the practice which would affect the particulars provided to the appropriate authority in connection with the application for consent, the employer must immediately notify the appropriate authority of that cessation or material change.
- (6) An employer who is aggrieved by—

(a) a decision of the appropriate authority refusing to grant a consent under paragraph (2) or revoking a consent under paragraph (4); or

(b) the terms of any conditions attached to a consent under paragraph (4),

may appeal to the Secretary of State.

(7) Sub-sections (2) to (6) of section 44 of the 1974 Act apply for the purposes of paragraph (6) as they apply to an appeal under section 44(1) of that Act.

(8) The Health and Safety Licensing Appeals (Hearings Procedure) Rules 1974, as respects England and Wales, and the Health and Safety Licensing Appeals (Hearings Procedure) (Scotland) Rules 1974, as respects Scotland, apply to an appeal under paragraph (6) as they apply to an appeal under sub-section (1) of section 44 of the 1974 Act, but with the modification that references to a licensing authority are to be read as references to the appropriate authority.

(9) In this regulation “appropriate authority” has the meaning given in regulation 6(10).

### **Radiation risk assessments**

**8.—**(1) An employer, before commencing a new activity involving work with ionising radiation in respect of which no risk assessment has been made by that employer, must make a suitable and sufficient assessment of the risk to any employee and other person for the purpose of identifying the measures the employer needs to take to restrict the exposure of that employee or other person to ionising radiation.

(2) Without prejudice to paragraph (1), an employer must not carry out work with ionising radiation unless it has made an assessment sufficient to demonstrate that—

(a) all hazards with the potential to cause a radiation accident have been identified; and

(b) the nature and magnitude of the risks to employees and other persons arising from those hazards have been evaluated.

(3) Where the assessment made for the purposes of this regulation shows that a radiation risk to employees or other persons exists from an identifiable radiation accident, the employer who is subject to the obligation in paragraph (1) to make the risk assessment must take all reasonably practicable steps to—

(a) prevent any such accident;

(b) limit the consequences of any accident which does occur; and

(c) provide employees with the information, instruction, training and equipment necessary to restrict their exposure to ionising radiation.

(4) The requirements of this regulation are without prejudice to the requirements of regulation 3 (Risk assessment) of the Management of Health and Safety at Work Regulations 1999<sup>M22</sup>.

#### **Marginal Citations**

**M22** S.I. 1999/3242; relevant amending instruments are S.I. 2003/2457, S.I. 2005/1541, S.S.I. 2006/457, S.I. 2015/21 and S.I. 2015/1637.

### **Restriction of exposure**

**9.—**(1) Every employer must, in relation to any work with ionising radiation that it undertakes, take all necessary steps to restrict so far as is reasonably practicable the extent to which its employees and other persons are exposed to ionising radiation.

*Status: Point in time view as at 01/01/2018.*

*Changes to legislation: There are currently no known outstanding effects for the The Ionising Radiations Regulations 2017. (See end of Document for details)*

(2) Without prejudice to the generality of paragraph (1), an employer in relation to any work with ionising radiation that it undertakes must—

- (a) so far as is reasonably practicable achieve the restriction of exposure to ionising radiation required under paragraph (1) by means of engineering controls, design features and by the provision and use of safety features and warning devices;
- (b) provide such systems of work as will, so far as is reasonably practicable, restrict the exposure to ionising radiation of employees and other persons; and
- (c) where it is reasonably practicable to further restrict exposure to ionising radiation by means of personal protective equipment, provide employees or other persons with adequate and suitable personal protective equipment (including respiratory protective equipment) unless the use of personal protective equipment of a particular kind is not appropriate having regard to the nature of the work or the circumstances of the particular case.

(3) An employer who provides any system of work or personal protective equipment pursuant to this regulation must take all reasonable steps to ensure that it is properly used or applied as the case may be.

(4) Where it is appropriate to do so at the planning stage of radiation protection, an employer, in relation to any work with ionising radiation that it undertakes, must use dose constraints in restricting exposure to ionising radiation pursuant to paragraph (1).

(5) An employer must establish the dose constraints referred to in paragraph (4) in terms of the effective or equivalent dose received by an individual over an appropriate period of time.

(6) Without prejudice to paragraph (1), an employer who undertakes work with ionising radiation must ensure that—

- (a) in relation to an employee who is pregnant, the conditions of exposure are such that, after the employee's employer has been notified of the pregnancy, the equivalent dose to the foetus is as low as is reasonably practicable and is unlikely to exceed 1 mSv during the remainder of the pregnancy; and
- (b) in relation to an employee who is breastfeeding, that employee must not be engaged in any work involving a significant risk of intake of radionuclides or of bodily contamination.

(7) Nothing in paragraph (6) requires the employer who undertakes work with ionising radiation to take any action in relation to an employee until that employee's employer has been notified in writing by the employee of the pregnancy or that the employee is breastfeeding and the employer who is undertaking the work with ionising radiation has been made aware, or should reasonably have been expected to be aware, of that notification.

(8) Every employer must, for the purpose of determining whether the requirements of paragraph (1) are being met, ensure that an investigation is carried out without delay when the effective dose of ionising radiation received by any of its employees for the first time in any calendar year exceeds 15 mSv or such other lower effective dose as the employer may specify, which dose must be specified in writing in local rules made pursuant to regulation 18(1) or, where local rules are not required, by other suitable means.

### **Personal protective equipment**

**10.**—(1) Any personal protective equipment provided by an employer pursuant to regulation 9 must be suitable for its purpose and—

- (a) comply with any provision of the Personal Protective Equipment Regulations 2002 <sup>M23</sup> which is applicable to that item of personal protective equipment; or
- (b) in the case of respiratory protective equipment where no provision referred to in subparagraph (a) applies, be of a type approved or conform to a standard approved, in either case, by the Executive.

(2) Every employer who provides personal protective equipment pursuant to regulation 9 must ensure that adequate facilities are provided for the storage of that equipment.

**Marginal Citations**

**M23** S.I. 2002/1144, amended by S.I. 2004/693, S.I. 2011/1043, S.I. 2012/1848 and S.I. 2015/1630.

**Maintenance and examination of engineering controls etc and personal protective equipment**

**11.**—(1) An employer who provides any engineering control, design feature, safety feature or warning device to meet the requirements of regulation 9(2)(a) must ensure—

- (a) that any such control, feature or device is properly maintained; and
- (b) where appropriate, that thorough examinations and tests of such controls, features or devices are carried out at suitable intervals.

(2) Every employer must ensure that—

- (a) all personal protective equipment provided pursuant to regulation 9 is, where appropriate, thoroughly examined at suitable intervals and is properly maintained; and
- (b) in the case of respiratory protective equipment, a suitable record of that examination is made and kept for at least 2 years from the date on which the examination was made and that the record includes a statement of the condition of the equipment at the time of the examination.

**Dose limitation**

**12.**—(1) Subject to paragraph (2), every employer must ensure that its employees and other persons within a class specified in Schedule 3 are not exposed to ionising radiation to an extent that any dose limit specified in Part 1 of that Schedule for such class of person is exceeded in any calendar year.

(2) Where an employer is able to demonstrate to the appropriate authority that, in respect of an employee, the dose limit specified in paragraph 1 of Part 1 of Schedule 3 is impracticable having regard to the nature of the work undertaken by that employee, the appropriate authority may in respect of that employee authorise the employer to apply the dose limits set out in paragraphs 8 or 9 of Schedule 3 and in such case the provisions of Part 2 of that Schedule will have effect.

(3) The steps taken by a relevant employer to comply with paragraph (1) in respect of members of the public must include an estimation of doses to members of the public from the relevant practice or practices carried out by the relevant employer in accordance with requirements regarding the estimation of doses as approved by the Executive from time to time.

(4) In this regulation—

“appropriate authority” means—

- (a) in relation to any activity carried out exclusively or primarily on nuclear premises, the ONR;
- (b) otherwise, the Executive;

“relevant employer” means an employer who is carrying out, or who intends to carry out, a relevant practice;

“relevant practice” means a practice to which regulation 6 or 7 applies.

**Contingency plans**

13.—(1) Where an assessment made in accordance with regulation 8 shows that a radiation accident is reasonably foreseeable (having regard to the steps taken by the employer under paragraph (3) of that regulation), the employer must prepare a contingency plan designed to secure, so far as is reasonably practicable, the restriction of exposure to ionising radiation and the health and safety of persons who may be affected by such accident.

(2) An employer must ensure that—

- (a) where local rules are required for the purposes of regulation 18, a copy of the contingency plan made in pursuance of paragraph (1) is identified in those rules and incorporated into them by way of summary or reference;
- (b) any employee under the employer's control who may be involved with or affected by arrangements in the plan has been given suitable and sufficient instructions and where appropriate issued with suitable dosimeters or other devices;
- (c) where appropriate, rehearsals of the arrangements in the plan are carried out at suitable intervals; and
- (d) if circumstances arise where it is necessary for some or all of the arrangements in the plan to be carried out—
  - (i) the cause of those circumstances is analysed to determine, so far as is reasonably practicable, the measures, if any, required to prevent a recurrence of such circumstances;
  - (ii) a record of such analysis is made and kept for at least 2 years from the date on which it was made; and,
  - (iii) any exposure which occurs due to the above circumstances is noted on any relevant dose record.

**PART 3****ARRANGEMENTS FOR THE MANAGEMENT OF RADIATION PROTECTION****Radiation protection adviser**

14.—(1) Subject to paragraph (3), every employer engaged in work with ionising radiation must consult such suitable radiation protection advisers as are necessary for the purpose of advising the employer on the observance of these Regulations and must, in any event, consult one or more suitable radiation protection advisers with regard to the matters set out in Schedule 4.

(2) Where an employer consults a radiation protection adviser pursuant to the requirements of paragraph (1) (other than in respect of the observance of that paragraph), the employer must appoint that radiation protection adviser in writing and must include in that appointment the scope of the advice which the radiation protection adviser is required to give.

(3) Nothing in paragraph (1) requires an employer to consult a radiation protection adviser where the only work with ionising radiation undertaken by that employer is work specified in Schedule 1.

(4) The employer must provide any radiation protection adviser appointed by it with adequate information and facilities for the performance of the radiation protection adviser's functions arising from their consultation or appointment under this regulation.

**Information, instruction and training**

15.—(1) Every employer must ensure that—

- (a) those of its employees who are engaged in work with ionising radiation are given appropriate training in the field of radiation protection and receive such information and instruction as is suitable and sufficient for them to know—
    - (i) the risks to health created by exposure to ionising radiation as a result of their work;
    - (ii) the general and specific radiation protection procedures and precautions which should be taken in connection with the work with ionising radiation to which they may be assigned; and
    - (iii) the importance of complying with the medical, technical and administrative requirements of these Regulations;
  - (b) adequate information is given to other persons who are directly concerned with the work with ionising radiation carried on by the employer to ensure their health and safety so far as is reasonably practicable;
  - (c) its female employees who are engaged in work with ionising radiation are informed of the possible risk arising from ionising radiation to the foetus and to a nursing infant and of the importance of their informing their employer in writing as soon as possible—
    - (i) after becoming aware of their pregnancy; or
    - (ii) if they intend to breast feed an infant;
  - (d) any employees engaged in work in a controlled area (as designated under regulation 17) are given specific training in connection with the characteristics of the workplace and the activities within it; and
  - (e) the giving of training and information under this regulation is repeated at appropriate intervals and documented by the employer.
- (2) In addition to the requirements in paragraph (1), every employer who is engaged in work with ionising radiation involving a high-activity sealed source must ensure that the information and training given to employees involved in such work includes—
- (a) specific requirements for the safe management and control of high-activity sealed sources for the purpose of preparing such employees for any events which may affect their radiation protection;
  - (b) particular emphasis on the necessary safety requirements in connection with high-activity sealed sources; and
  - (c) specific information on the possible consequences of the loss of adequate control of high-activity sealed sources.

### **Co-operation between employers**

**16.** Where work with ionising radiation undertaken by one employer is likely to give rise to the exposure to ionising radiation of the employee of another employer, the employers concerned must co-operate by the exchange of information or otherwise to the extent necessary to ensure that each such employer—

- (a) has access to information on the possible exposure of their employees to ionising radiation; and
- (b) is enabled to comply with the requirements of these Regulations in so far as their ability to comply depends upon such co-operation.

## PART 4

### DESIGNATED AREAS

#### Designation of controlled or supervised areas

17.—(1) Every employer must designate as a controlled area any area under its control which has been identified by an assessment made by that employer (whether pursuant to regulation 8 or otherwise) as an area in which—

- (a) it is necessary for any person who enters or works in the area to follow special procedures designed to restrict significant exposure to ionising radiation in that area or prevent or limit the probability and magnitude of radiation accidents or their effects; or
- (b) any person working in the area is likely to receive an effective dose greater than 6 mSv a year or an equivalent dose greater than 15 mSv a year for the lens of the eye or greater than 150 mSv a year for the skin or the extremities.

(2) An employer must not intentionally create in any area conditions which would require that area to be designated as a controlled area unless that area is for the time being under the control of that employer.

(3) An employer must designate as a supervised area any area under its control, not being an area designated as a controlled area—

- (a) where it is necessary to keep the conditions of the area under review to determine whether the area should be designated as a controlled area; or
- (b) in which any person is likely to receive an effective dose greater than 1 mSv a year or an equivalent dose greater than 5 mSv a year for the lens of the eye or greater than 50 mSv a year for the skin or the extremities.

#### Local rules and radiation protection supervisors

18.—(1) For the purposes of enabling work with ionising radiation to be carried on in accordance with the requirements of these Regulations, every employer engaged in work with ionising radiation must, in respect of any controlled area or, where appropriate having regard to the nature of the work carried out there, any supervised area, make and set down in writing such local rules as are appropriate to the radiation risk and the nature of the operations undertaken in that area.

(2) Local rules must identify the main working instructions intended to restrict any exposure in that controlled or supervised area.

(3) An employer must take all reasonable steps to ensure that any local rules which are relevant to the work being carried out are observed.

(4) An employer must ensure that any relevant local rules are brought to the attention of those employees and other persons who may be affected by them.

(5) An employer must—

- (a) appoint one or more suitable radiation protection supervisors for the purpose of securing compliance with these Regulations in respect of work carried out in any area made subject to local rules;
- (b) set down in the local rules the names of such radiation protection supervisors; and
- (c) provide the means necessary for such radiation protection supervisors to perform their role.



### Additional requirements for designated areas

19.—(1) Every employer who designates any area as a controlled or supervised area must ensure that any such designated area—

- (a) is adequately described in local rules; and
- (b) has suitable and sufficient signs displayed in suitable positions warning that the area has been so designated and indicating the nature of the radiation sources and the risks arising from such sources.

(2) A controlled area must be physically demarcated or, where this is not reasonably practicable, delineated by some other suitable means.

(3) The employer who has designated an area as a controlled area must not permit any person to enter or remain in that area unless they—

- (a) are a classified person who is not a classified outside worker;
- (b) are a classified outside worker in respect of whom that employer has taken all reasonable steps to ensure that the person—
  - (i) is subject to individual dose assessment pursuant to regulation 22;
  - (ii) has been provided with and has been trained to use any personal protective equipment that may be necessary pursuant to regulation 9(2)(c);
  - (iii) has received any specific training required pursuant to regulation 15; and
  - (iv) has been certified fit pursuant to regulation 25 for the work with ionising radiation which the person is to carry out; or
- (c) not being a classified person, have entered or remain in the area in accordance with suitable written arrangements.

(4) The written arrangements referred to in paragraph (3)(c) must ensure that—

- (a) an employee or a non-classified outside worker aged 18 years or over does not receive in any calendar year a cumulative dose of ionising radiation which would require that person to be designated as a classified person; or
- (b) any other person does not receive in any calendar year a dose of ionising radiation exceeding any relevant dose limit.

(5) A non-classified outside worker is not permitted to enter or remain in a controlled area pursuant to paragraph (3)(c) unless they have been provided with personal protective equipment and training pursuant to paragraph (3)(b)(ii) and (iii).

(6) An employer who has designated an area as a controlled area must not permit a person to enter or remain in such area in accordance with written arrangements pursuant to paragraph (3)(c) unless the employer can demonstrate, by personal dose monitoring or other suitable measurements, that the doses are restricted in accordance with paragraph (4).

(7) An employer who has designated an area as a controlled area must, in relation to a classified outside worker, ensure that—

- (a) the classified outside worker is subject to arrangements for estimating the dose of ionising radiation received by that worker whilst in the controlled area;
- (b) as soon as is reasonably practicable after the services carried out by that classified outside worker in that controlled area are completed, an estimate of the dose received by that worker is entered into that worker's radiation passbook; and
- (c) when the radiation passbook of the classified outside worker is in the possession of that employer, the passbook is made available to that worker upon request.

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(8) The employer who carries out the monitoring or measurements pursuant to paragraph (6) must keep the results of the monitoring or measurements referred to in that paragraph for a period of 2 years from the date they were recorded and must, at the request of the person to whom the monitoring or measurements relate and on reasonable notice being given, make the results available to that person.

(9) In any case where there is a significant risk of the spread of radioactive contamination from a controlled area, the employer who has designated that area as a controlled area must make adequate arrangements to restrict, so far as is reasonably practicable, the spread of such contamination.

(10) Without prejudice to the generality of paragraph (9), the arrangements required by that paragraph must, where appropriate, include—

- (a) the provision of suitable and sufficient washing and changing facilities for persons who enter or leave any controlled or supervised area;
- (b) the proper maintenance of such washing and changing facilities;
- (c) the prohibition of eating, drinking or smoking or any similar activity likely to result in the ingestion, inhalation or absorption of a radioactive substance by any employee or outside worker in a controlled area; and
- (d) the means for monitoring contamination—
  - (i) within a controlled area and, where appropriate, in the adjacent area; and
  - (ii) on any person, article or goods leaving a controlled area.

### **Monitoring of designated areas**

**20.**—(1) Every employer who designates an area as a controlled or supervised area must take such steps as are necessary (otherwise than by use of assessed doses of individuals), having regard to the nature and extent of the risks resulting from exposure to ionising radiation, to ensure that levels of ionising radiation are adequately monitored for each such area and that working conditions in those areas are kept under review.

(2) Adequate monitoring referred to in paragraph (1) must include—

- (a) in relation to areas designated on the basis of external radiation, measurement of dose rates (averaged over a suitable period if necessary); and
- (b) in relation to areas designated on the basis of internal radiation, measurements where appropriate of air activity and surface contamination taking into account the physical and chemical states of the radioactive contamination.

(3) The employer upon whom a duty is imposed by paragraph (1) must provide suitable and sufficient equipment for carrying out the monitoring required by that paragraph, which equipment must—

- (a) be properly maintained so that it remains fit for the purpose for which it was intended; and
- (b) be adequately tested and examined at appropriate intervals.

(4) Equipment provided pursuant to paragraph (3) will not be or remain suitable unless—

- (a) the performance of the equipment has been established by adequate tests before it has first been used; and
- (b) the tests and examinations carried out pursuant to paragraph (3) and sub-paragraph (a) have been carried out by or under the supervision of a suitably qualified person.

(5) The employer upon whom a duty is imposed by paragraph (1) must—

- (a) make suitable records of the results of the monitoring carried out in accordance with paragraph (1) and of the tests carried out in accordance with paragraphs (3) and (4);

- (b) ensure that the records of the tests carried out in accordance with paragraphs (3) and (4) are authorised by a suitably qualified person; and
  - (c) keep the records referred to in sub-paragraph (a), or copies of those records, for at least 2 years from the respective dates on which they were made.
- (6) Suitable records of the results of the monitoring referred to in paragraph 5(a) must include—
- (a) in relation to areas designated on the basis of external radiation, an indication of the nature and quality of the radiation in question;
  - (b) in relation to areas designated on the basis of internal radiation, an indication, where appropriate, of the nature and physical and chemical states of the radioactive contamination.

## **PART 5**

### **CLASSIFICATION AND MONITORING OF PERSONS**

#### **Designation of classified persons**

**21.**—(1) Subject to paragraph (2), the employer must designate as classified persons those of its 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 that they have been so designated.

(2) The employer must not designate an employee as a classified person unless—

- (a) that employee is aged 18 years or over; and
- (b) a relevant doctor has certified in the health record that that employee is fit for the work with ionising radiation which that employee is to carry out.

(3) The employer may cease to treat an employee as a classified person only at the end of a calendar year except where—

- (a) a relevant doctor so requires; or
- (b) the employee is no longer employed by the same employer in a capacity which is likely to result in significant exposure to ionising radiation during the remainder of the relevant calendar year.

#### **Dose assessment and recording**

**22.**—(1) Every employer must ensure that—

- (a) in respect of each of its employees who is designated as a classified person, an assessment is made of all doses of ionising radiation received by such employee which are likely to be significant; and
- (b) such assessments are recorded.

(2) For the purposes of paragraph (1), the employer must make suitable arrangements with one or more approved dosimetry service for—

- (a) the making of systematic assessments of such doses by the use of suitable individual measurement for appropriate periods or, where individual measurement is inappropriate, by means of other suitable measurements; and
- (b) the making and maintenance of dose records relating to each classified person.

(3) For the purposes of paragraph (2)(b), the arrangements that the employer makes with the approved dosimetry service must include requirements for that service—

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- (a) to keep the records made and maintained pursuant to the arrangements, or a copy of those records, until the person to whom the record relates has or would have attained the age of 75 years but in any event for at least 30 years from when the record was made;
  - (b) to provide the employer at appropriate intervals with suitable summaries of the maintained dose records;
  - (c) when and as required by the employer, to provide the employer with copies of the dose record relating to any of the employer's employees;
  - (d) when required by the employer, to make a record of the information concerning the dose assessment relating to a classified person who ceases to be an employee of the employer, and to send that record to the Executive and a copy of the record to the employer as soon as possible, and such a record is referred to in this regulation as a "termination record";
  - (e) within 3 months, or such longer period as the Executive may agree, of the end of each calendar year to send to the Executive summaries of all current dose records relating to that year;
  - (f) when required by the appropriate authority, to provide it with copies of any dose records;
  - (g) where a dose is estimated pursuant to regulation 23, to make an entry in a dose record and retain the summary of the information used to estimate that dose;
  - (h) where the employer employs a classified outside worker, to provide, where appropriate, a current radiation passbook in respect of that classified outside worker; and
  - (i) where the employer employs a classified outside worker who works in Northern Ireland or another member State, to maintain a continuing record of the assessment of the dose received by that classified outside worker when working in such place.
- (4) The employer must provide the approved dosimetry service with such information concerning its employees as is necessary for the approved dosimetry service to comply with the arrangements made for the purposes of paragraph (2).
- (5) An employer must—
- (a) ensure that each classified outside worker employed by it is provided with a current individual radiation passbook which must not be transferable to any other worker and in which must be entered the particulars set out in Schedule 5; and
  - (b) make suitable arrangements to ensure that the particulars entered in the radiation passbook are kept up-to-date during the period of employment of the classified outside worker by that employer.
- (6) The employer must—
- (a) at the request of a classified person employed by the employer (or of a person formerly employed by the employer as a classified person) and on reasonable notice being given, obtain (where necessary) from the approved dosimetry service and make available to that person—
    - (i) a copy of the dose summary provided for the purpose of paragraph (3)(b) relating to that person and made within a period of 2 years preceding the request; and
    - (ii) a copy of the dose record of that person; and
  - (b) when a classified person ceases to be employed by the employer, take all reasonable steps to provide that person with a copy of their termination record.
- (7) The employer must keep a copy of the summary of the dose record received from the approved dosimetry service for at least 2 years from the end of the calendar year to which the summary relates.
- (8) In this regulation, "appropriate authority" means—

- (a) in connection with the application of this regulation in relation to, or in relation to any activity carried out on, any nuclear premises, the ONR;
- (b) otherwise, the Executive.

### **Estimated and notional doses and special entries**

**23.**—(1) Where a dosimeter or other device is used to make any individual measurement under regulation 22(2) and that dosimeter or device is lost, damaged or destroyed or it is not practicable to assess the dose received by a classified person over any period, the employer must—

- (a) make an adequate investigation of the circumstances of the case with a view to estimating the dose received by that person during that period and either—
  - (i) in a case where there is adequate information to estimate the dose received by that person, send to the approved dosimetry service an adequate summary of the information used to estimate that dose and arrange for the approved dosimetry service to enter the estimated dose in the dose record of that person; or
  - (ii) in a case where there is inadequate information to estimate the dose received by the classified person, arrange for the approved dosimetry service to enter a notional dose in the dose record of that person which must be the proportion of the total annual dose limit for the relevant period; and
- (b) in either case referred to in sub-paragraph (a), take reasonable steps to inform the classified person of the entry in their dose record and arrange for the approved dosimetry service to identify that entry as an estimated dose or a notional dose as the case may be.

(2) The employer must, at the request of the classified person (or a person formerly employed by that employer as a classified person) to whom the investigation made under paragraph (1) relates and on reasonable notice being given, make available to that person a copy of the summary sent to the approved dosimetry service under paragraph (1)(a).

(3) Subject to paragraphs (5) and (8), where an employer has reasonable cause to believe that the dose received by a classified person is much greater or much less than that shown in the relevant entry of the dose record, the employer must make an adequate investigation of the circumstances of the exposure of that person to ionising radiation and, if that investigation confirms the employer's belief, the employer must, where there is adequate information to estimate the dose received by the classified person—

- (a) send to the approved dosimetry service an adequate summary of the information used to estimate that dose;
- (b) arrange for the approved dosimetry service to enter that estimated dose in the dose record of that person and for the approved dosimetry service to identify the estimated dose in the dose record as a special entry; and
- (c) notify the classified person accordingly.

(4) The employer must make a report of any investigation carried out under paragraph (3) and must preserve a copy of that report for a period of 2 years from the date it was made.

(5) Paragraph (3) does not apply—

- (a) in respect of a classified person subject only to an annual dose limit, more than 12 months after the original entry was made in the record; and
- (b) in any other case, more than 5 years after the original entry was made in the record.

(6) Where a classified person is aggrieved by a decision to replace a recorded dose by an estimated dose pursuant to paragraph (3) that person may, by an application in writing to the appropriate authority made within 3 months of the date on which that person was notified of the decision, apply for that decision to be reviewed.

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(7) Where the appropriate authority concludes (whether as a result of a review carried out pursuant to paragraph (6) or otherwise) that—

- (a) there is reasonable cause to believe the investigation carried out pursuant to paragraph (3) was inadequate; or
- (b) a reasonable estimated dose has not been established,

the employer must, if so directed by the appropriate authority, require the approved dosimetry service to re-instate the original entry in the dose record.

(8) The employer must not, without the consent of the appropriate authority, require the approved dosimetry service to enter an estimated dose in the dose record in any case where—

- (a) the cumulative recorded effective dose is 20 mSv or more in one calendar year; or
- (b) the cumulative recorded equivalent dose for the calendar year exceeds a relevant dose limit.

(9) In this regulation “appropriate authority” means—

- (a) in relation to a classified person employed wholly or mainly on nuclear premises, the ONR;
- (b) otherwise, the Executive.

### **Dosimetry for accidents etc**

**24.**—(1) Where any accident or other occurrence takes place which is likely to result in a person receiving an effective dose of ionising radiation greater than 6 mSv or an equivalent dose greater than 15 mSv for the lens of an eye or greater than 150 mSv for the skin or the extremities, the employer must—

- (a) in the case of a classified person, arrange for a dose assessment to be made by the approved dosimetry service as soon as possible;
- (b) in the case of an employee to whom a dosimeter or other device has been issued in accordance with regulation 13(2), arrange for that dosimeter or device to be examined and for the dose received to be assessed by the approved dosimetry service as soon as possible;
- (c) in any other case, arrange for the dose to be assessed by an appropriate means as soon as possible, having regard to the advice of the radiation protection adviser.

(2) In each such case, the employer must—

- (a) take all reasonably practicable steps to inform each person for whom a dose assessment has been made of the result of that assessment;
- (b) notify the appropriate authority of the result of the dose assessment as soon as possible; and
- (c) keep a record or copy of the assessment until the person to whom the record relates has or would have attained the age of 75 years but in any event for at least 30 years from the date of the relevant accident.

(3) In this regulation “appropriate authority” means—

- (a) in relation to an accident or other occurrence as a result of work carried out on nuclear premises, the ONR;
- (b) otherwise, the Executive.

### **Medical surveillance**

**25.**—(1) This regulation applies in relation to—

- (a) classified persons and persons whom an employer intends to designate as classified persons;

- (b) employees who have received an overexposure and are not classified persons;
  - (c) employees in respect of whom a relevant doctor has made a certification under paragraph (5).
- (2) An employer must ensure that—
- (a) each of its employees to whom this regulation relates is under adequate medical surveillance by a relevant doctor for the purpose of determining the fitness of each employee for the work with ionising radiation which that employee is to carry out;
  - (b) a health record containing the particulars referred to in Schedule 6 is made and maintained in respect of such employees; and
  - (c) the record or a copy of the record is kept until the person to whom the record relates has or would have attained the age of 75 years but in any event for at least 30 years from the date of the last entry made in it.
- (3) Subject to paragraph (4), an employer must ensure that there is a valid entry made by a relevant doctor in the health record of each of its employees to whom this regulation relates (other than employees who have received an overexposure and who are not classified persons) and an entry in the health record is valid—
- (a) for 12 months from the date it was made or treated as made by virtue of paragraph (4);
  - (b) for such shorter period as is specified in the entry by the relevant doctor; or
  - (c) until cancelled by a relevant doctor by a further entry in the record.
- (4) For the purposes of paragraph (3)(a), a further entry in the health record of the same employee, where made not less than 11 months nor more than 13 months after the start of the current period of validity, is to be treated as if made at the end of that period.
- (5) Where a relevant doctor has certified in the health record of an employee that in their professional opinion that employee should not be engaged in work with ionising radiation or that the employee should only be so engaged under conditions specified by the relevant doctor in the health record, the employer must not permit that employee to be engaged in the work with ionising radiation, or only permit the employee to be engaged in the work in accordance with the conditions so specified, as the case may be.
- (6) Where a relevant doctor requires to inspect any workplace for the purpose of carrying out their functions under these Regulations the employer must permit them to do so.
- (7) An employer must make available to the relevant doctor the summary of the dose record kept by the employer pursuant to regulation 22(7) and such other records kept for the purposes of these Regulations as the relevant doctor may reasonably require.
- (8) Where an employee is aggrieved by a decision recorded in the health record by a relevant doctor the employee may, by an application in writing to the Executive made within 28 days of the date on which the employee was notified of the decision, apply for that decision to be reviewed in accordance with a procedure approved for the purposes of this paragraph by the Executive, and the result of that review must be notified to the employee and entered in the employee's health record in accordance with the approved procedure.

### **Investigation and notification of overexposure**

26.—(1) Where an employer suspects or has been informed that any person is likely to have received an overexposure as a result of work with ionising radiation carried out by that employer, that employer must make an immediate investigation to determine whether there are circumstances which show beyond reasonable doubt that no overexposure could have occurred and, unless this is shown, the employer must—

- (a) as soon as practicable notify the suspected overexposure to—

*Status: Point in time view as at 01/01/2018.*

*Changes to legislation: There are currently no known outstanding effects for the The Ionising Radiations Regulations 2017. (See end of Document for details)*

- (i) the appropriate authority;
  - (ii) in the case of an employee of some other employer, that other employer; and
  - (iii) in the case of the employer's own employee, the relevant doctor;
- (b) as soon as practicable take reasonable steps to notify the suspected overexposure to the person affected;
- (c) make or arrange for such investigation of the circumstances of the exposure and an assessment of any relevant dose received as is necessary to determine, so far as is reasonably practicable, the measures, if any, required to be taken to prevent a recurrence of such overexposure; and
- (d) immediately notify the results of the investigation and assessment referred to in sub-paragraph (c) to the persons and authorities mentioned in sub-paragraph (a) and must—
- (i) in the case of the employer's employee, immediately notify that employee of the results of the investigation and assessment; or
  - (ii) in the case of a person who is not the employer's employee, where the investigation has shown that that person has received an overexposure, take all reasonable steps to notify that person of their overexposure.
- (2) An employer who makes any investigation pursuant to paragraph (1) must make a report of that investigation and must—
- (a) in respect of an immediate investigation, keep that report or a copy of the report for at least 2 years from the date on which it was made; and
  - (b) in respect of an investigation made pursuant to paragraph (1)(c), keep that report or a copy of the report until the person to whom the record relates has or would have attained the age of 75 years but in any event for at least 30 years from the date on which it was made.
- (3) Where the person who received the overexposure is an employee who has a dose record, the employer's employer must arrange for the assessment of the dose received to be entered into that dose record.
- (4) In this regulation “appropriate authority” means—
- (a) in relation to overexposure as a result of work carried out on nuclear premises, the ONR;
  - (b) otherwise, the Executive.

### **Dose limitation for overexposed employees**

27.—(1) Without prejudice to other requirements of these Regulations and in particular regulation 25(5), where an employee has been subjected to an overexposure paragraph (2) applies in relation to the employment of that employee on work with ionising radiation during the remainder of the dose limitation period, where that remaining period commences at the end of the personal dose assessment period in which that employee was subjected to the overexposure.

(2) The employer must ensure that an employee to whom this regulation relates does not, during the remainder of the dose limitation period, receive a dose of ionising radiation greater than that proportion of any dose limit which is equal to the proportion that the remaining part of the dose limitation period bears to the whole of that period.

(3) The employer must inform an employee who has been subjected to an overexposure of the dose limit which is applicable to that employee for the remainder of the relevant dose limitation period.

(4) In this regulation, “dose limitation period” means, as appropriate, a calendar year or the period of five consecutive calendar years.



## **PART 6**

### **ARRANGEMENTS FOR THE CONTROL OF RADIOACTIVE SUBSTANCES, ARTICLES AND EQUIPMENT**

#### **Sealed sources and articles containing or embodying radioactive substances**

**28.**—(1) Where a radioactive substance is used as a source of ionising radiation in work with ionising radiation, the employer must ensure that, whenever reasonably practicable, the substance is in the form of a sealed source.

(2) The employer must ensure that the design, construction and maintenance of any article containing or embodying a radioactive substance, including its bonding, immediate container or other mechanical protection, is such as to prevent the leakage of any radioactive substance—

- (a) in the case of a sealed source, so far as is practicable; or
- (b) in the case of any other article, so far as is reasonably practicable.

(3) The employer must—

- (a) ensure that, where appropriate, suitable tests are carried out at suitable intervals to detect leakage of radioactive substances from any article to which paragraph (2) applies; and
- (b) make a suitable record of each such test and retain that record for at least 2 years after the article is disposed of or until a further record is made following a subsequent test to that article.

#### **Accounting for radioactive substances**

**29.** Every employer, for the purpose of controlling radioactive substances which are involved in work with ionising radiation undertaken by that employer, must—

- (a) take such steps as are appropriate to account for and keep records of the quantity and location of those substances; and
- (b) keep those records or a copy of the records for at least 2 years from the date on which they were made and, in addition, for at least 2 years from the date of disposal of that radioactive substance.

#### **Keeping and moving of radioactive substances**

**30.**—(1) An employer must ensure, so far as is reasonably practicable, that any radioactive substance under its control which is not for the time being in use or being moved, transported or disposed of—

- (a) is kept in a suitable receptacle; and
- (b) is kept in a suitable store.

(2) An employer who causes or permits a radioactive substance to be moved (otherwise than by transporting it) must ensure that, so far as is reasonably practicable, the substance is kept in a suitable receptacle, suitably labelled, while it is being moved.

(3) Nothing in paragraphs (1) or (2) applies in relation to a radioactive substance while it is in or on the live body or corpse of a human being.

**Notification of certain occurrences**

**31.—**(1) An employer must immediately notify the appropriate authority in any case where a quantity of a radioactive substance which was under its control and which exceeds the quantity specified for that substance in column 5 of Part 1 of Schedule 7—

- (a) has been released or is likely to have been released into the atmosphere as a gas, aerosol or dust; or
- (b) has been spilled or otherwise released in such a manner as to give rise to significant contamination.

(2) Paragraph (1) does not apply where such release—

- (a) in relation to England and Wales—
  - (i) was in accordance with an environmental permit under the Environmental Permitting (England and Wales) Regulations 2016<sup>M24</sup> in respect of mobile radioactive apparatus within the meaning of those regulations;
  - (ii) was in a manner specified in such an environmental permit in respect of radioactive waste within the meaning of those regulations; or
  - (iii) did not, under regulation 12 of those regulations, require an environmental permit;
- (b) in relation to Scotland—
  - (i) was in accordance with a registration under section 10 of the Radioactive Substances Act 1993<sup>M25</sup> or which was exempt from such registration by virtue of section 11 of that Act; or
  - (ii) was in a manner specified in an authorisation to dispose of radioactive waste under section 13 of that Act or which was exempt from such authorisation by virtue of section 15 of that Act.

(3) Where an employer has reasonable cause to believe that a quantity of a radioactive substance which exceeds the quantity for that substance specified in column 6 of Part 1 of Schedule 7 and which was under its control is lost or has been stolen, the employer must immediately notify the appropriate authority of that loss or theft, as the case may be.

(4) Where an employer suspects or has been informed that an occurrence notifiable under this regulation may have occurred, it must make an immediate investigation and, unless that investigation shows that no such occurrence has occurred, it must immediately make a notification under the relevant paragraph of this regulation.

(5) An employer who makes any investigation in accordance with paragraph (4) must make a report of that investigation and must, unless the investigation showed that no such occurrence occurred, keep that report or a copy of the report for at least 30 years from the date on which it was made or, in any other case, for at least 2 years from the date on which it was made.

(6) In this regulation “appropriate authority” means—

- (a) in relation to an occurrence notifiable under this regulation as a result of work carried out on nuclear premises, the ONR;
- (b) otherwise, the Executive.

**Marginal Citations**

**M24** [S.I. 2016/1154](#).

**M25** [1993 c.12](#); [section 10](#) was amended by paragraphs 200 and 2004 of Schedule 22 to the [Environment Act 1995 \(c. 25\)](#). Relevant amendments were also made by [S.I. 2005/2686](#) and [S.S.I. 2011/207](#).

### **Duties of manufacturers etc of articles for use in work with ionising radiation**

**32.**—(1) In the case of articles for use at work, where that work is work with ionising radiation, section 6(1) of the 1974 Act (which imposes general duties on manufacturers etc. as regards articles and substances for use at work) is modified so that any duty imposed on any person by that subsection includes a duty to ensure that any such article is so designed and constructed as to restrict so far as is reasonably practicable the extent to which employees and other persons are or are likely to be exposed to ionising radiation.

(2) Where a person erects or installs an article for use at work, being work with ionising radiation, that person must—

- (a) undertake a critical examination of the way in which the article was erected or installed for the purpose of ensuring, in particular, that—
  - (i) any safety features and warning devices operate correctly; and
  - (ii) there is sufficient protection for persons from exposure to ionising radiation;
- (b) consult with the radiation protection adviser that they appointed, or that the employer engaged in work with ionising radiation appointed, with regard to the nature and extent of any critical examination and the results of that examination; and
- (c) provide the employer engaged in work with ionising radiation with adequate information about proper use, testing and maintenance of the article.

### **Equipment used for medical exposure**

**33.**—(1) Every employer who has to any extent control of any equipment or apparatus which is used in connection with a medical exposure must, having regard to the extent of its control over the equipment, ensure that such equipment is of such design or construction and is so installed and maintained as to be capable of restricting so far as is reasonably practicable the exposure to ionising radiation of any person who is undergoing a medical exposure to the extent that this is compatible with the intended clinical purpose or research objective.

(2) An employer who has to any extent control of any radiation equipment which is used for the purpose of diagnosis and which is installed on or after the date of the coming into force of these Regulations must, having regard to the extent of the employer's control over the equipment, ensure that such equipment is provided, where practicable, with suitable means for informing the user of that equipment of the quantity of radiation produced by that equipment during a radiological procedure.

(3) Every employer in respect of whom a duty is imposed by paragraph (1) must, to the extent that it is reasonable for the employer to do so having regard to the extent of the employer's control over the equipment, make arrangements for a suitable quality assurance programme to be provided in respect of the equipment or apparatus for the purpose of ensuring that it remains capable of restricting so far as is reasonably practicable exposure to the extent that this is compatible with the intended clinical purpose or research objective.

(4) Without prejudice to the generality of paragraph (3), the quality assurance programme required by that paragraph must require the carrying out of—

- (a) in respect of equipment or apparatus first used on or after the date of the coming into force of this regulation, adequate testing of that equipment or apparatus before it is first used for clinical purposes;
- (b) adequate testing of the performance of the equipment or apparatus at appropriate intervals and after any major maintenance procedure to that equipment or apparatus;
- (c) where appropriate, such measurements at suitable intervals as are necessary to enable the assessment of representative doses from any radiation equipment to persons undergoing medical exposures.

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(5) Every employer who has to any extent control of any radiation equipment must take all such steps as are reasonably practicable to prevent the failure of any such equipment where such failure could result in an exposure to ionising radiation greater than that intended and to limit the consequences of any such failure.

(6) Where an employer suspects or has been informed that an incident may have occurred in which a person while undergoing a medical exposure was, as the result of a malfunction of, or defect in, radiation equipment under the control of that employer, exposed to ionising radiation to an extent much greater than that intended, the employer must make an immediate investigation of the suspected incident.

(7) Unless the immediate investigation referred to in paragraph (6) shows beyond reasonable doubt that no such incident has occurred, the employer must immediately notify the appropriate authority of the incident and make or arrange for a detailed investigation of the circumstances of the exposure and an assessment of the dose received.

(8) An employer who makes an investigation in accordance with paragraph (6) or (7) must make a report of that investigation and must—

- (a) in relation to an investigation made under paragraph (6), keep the report or a copy of the report for a period of at least 2 years from the date on which it was made; and
- (b) in relation to an investigation made under paragraph (7), keep the report or a copy of the report for a period of at least 30 years from the date on which it was made.

(9) In this regulation—

“appropriate authority” means—

- (a) in connection with the application of this regulation in relation to, or in relation to any activity carried out on, any nuclear premises, the ONR;
- (b) otherwise, the Executive;

“radiation equipment” means equipment which delivers ionising radiation to the person undergoing a medical exposure and equipment which directly controls the extent of the exposure.

### **Misuse of or interference with sources of ionising radiation**

**34.** No person may intentionally or recklessly misuse or without reasonable excuse interfere with any radioactive substance or any electrical equipment in respect of which these Regulations apply.

## **PART 7**

### **DUTIES OF EMPLOYEES AND MISCELLANEOUS**

#### **Duties of employees**

**35.—**(1) An employee who is engaged in work with ionising radiation must not knowingly expose themselves or any other person to ionising radiation to an extent greater than is reasonably necessary for the purposes of their work, and must exercise reasonable care while carrying out such work.

(2) Every employee or outside worker for whom personal protective equipment is provided pursuant to regulation 9(2)(c) must—

- (a) make full and proper use of any such personal protective equipment;
- (b) immediately report to the employer who provided any such personal protective equipment any defect they discover in that equipment; and

- (c) take all reasonable steps to ensure that any such personal protective equipment is returned after use to the accommodation provided for it.
- (3) It is the duty of every classified outside worker not to misuse the radiation passbook issued to that worker or falsify or attempt to falsify any of the information contained in it.
- (4) Any employee to whom regulation 22(1) or regulation 13(2)(b) relates must comply with any reasonable requirement imposed on that person by that person's employer for the purposes of making the measurements and assessments required under regulation 22(1) and regulation 24(1).
- (5) An employee who is subject to medical surveillance under regulation 25 must, when required by their employer and at the cost of the employer, present themselves during their working hours for such medical examination and tests as may be required for the purposes of regulation 25(2) and must provide the relevant doctor with such information concerning their health as the relevant doctor may reasonably require.
- (6) Where an employee has reasonable cause to believe that—
- (a) they or some other person has received an overexposure;
  - (b) an occurrence mentioned in paragraph (1) or (3) of regulation 31 has occurred; or
  - (c) an incident mentioned in regulation 33(6) has occurred,
- they must immediately notify their employer of that belief.

### Approval of dosimetry services

- 36.**—(1) The Executive (or such other person as may from time to time be specified in writing by the Executive) may, by a certificate in writing, approve (in accordance with such criteria as may from time to time be specified by the Executive) a suitable dosimetry service for such of the purposes of these Regulations or of the Radiation (Emergency Preparedness and Public Information) Regulations 2001 <sup>M26</sup> as are specified in the certificate.
- (2) A certificate made pursuant to paragraph (1) may be made subject to conditions and may be revoked in writing at any time.
- (3) The Executive (or such other person as may from time to time be specified in writing by the Executive) may at such periods as it considers appropriate carry out a re-assessment of any approval granted pursuant to paragraph (1).

#### Marginal Citations

**M26** S.I. 2001/2975, amended by S.I. 2002/2099, S.I. 2002/2469, S.I. 2006/557, S.I. 2007/1573, S.I. 2013/235, S.I. 2013/1471, S.I. 2014/469 and S.I. 2015/1682.

### Defence on contravention

- 37.**—(1) In any proceedings against an employer for an offence under regulation 5(2) (notification), 6(3) (registration) or 7(2) (consent), it is a defence for that employer to prove that—
- (a) it neither knew nor had reasonable cause to believe that it had carried out or might be required to carry out work that required notification under regulation 5(2), registration under regulation 6(3) or consent under regulation 7(2) (as the case may be); and
  - (b) in a case where it discovered that it had carried out or was carrying out such work, it had immediately notified, registered or applied for consent for such work (as the case may be) in accordance with those regulations.
- (2) The defence in paragraph (1)—

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- (a) in connection with an offence under regulation 6(3), does not apply in relation to the operation of a radiation generator; and
  - (b) in connection with an offence under regulation 7(2), only applies in relation to a practice referred to in regulation 7(1)(g).
- (3) In any proceedings against an employer for an offence under regulation 8, it is a defence for that employer to prove that—
- (a) it neither knew nor had reasonable cause to believe that it had commenced a new activity involving work with ionising radiation; and
  - (b) in a case where it had discovered that it had commenced a new activity involving work with ionising radiation, it had as soon as practicable made an assessment as required by regulation 8.
- (4) In any proceedings against an employer for an offence under regulation 28(2) it is a defence for that employer to prove that—
- (a) it had received and reasonably relied on a written undertaking from the supplier of the article concerned that the article complied with the requirements of that paragraph; and
  - (b) it had complied with the requirements of paragraph (3) of that regulation.
- (5) In any proceedings against an employer of an outside worker for a breach of a duty under these Regulations it is a defence for that employer to show that—
- (a) it had entered into a contract in writing with the employer who had designated an area as a controlled or supervised area and in which the outside worker was working or was to work for that employer to perform that duty on its behalf; and
  - (b) the breach of duty was a result of the failure of the employer referred to in subparagraph (a) to fulfil that contract.
- (6) In any proceedings against any employer who has designated a controlled or supervised area in which any outside worker is working or is to work for a breach of a duty under these Regulations it is a defence for that employer to show that—
- (a) it had entered into a contract in writing with the employer of an outside worker for that employer to perform that duty on its behalf; and
  - (b) the breach of duty was a result of the failure of the employer referred to in subparagraph (a) to fulfil that contract.
- (7) A person charged is not, without the permission of the court, entitled to rely on the defence referred to in paragraph (5) or (6) unless, within a period ending 7 clear days before the hearing, that person has served on the prosecutor a notice in writing of that person's intention to rely on the defence and the notice must be accompanied by a copy of the contract on which that person intends to rely and, if that contract is not in English, an accurate translation of that contract into English.
- (8) Where a contravention of these Regulations by any person is due to the act or default of some other person, that other person will be guilty of the offence which would, but for any defence under this regulation available to the first-mentioned person, be constituted by the act or default.
- (9) In this regulation, “appropriate authority” means—
- (a) in connection with the application of this regulation in relation to, or in relation to any activity carried out on, any nuclear premises, the ONR;
  - (b) otherwise, the Executive.

### **Exemption certificates**

**38.**—(1) Subject to paragraph (2), the appropriate authority may, by a certificate in writing, exempt—

(a) any person or class of persons;  
(b) any premises or class of premises; or  
(c) any equipment, apparatus or substance or class of equipment, apparatus or substance,  
from any requirement or prohibition imposed by these Regulations and any such exemption may be granted subject to conditions and to a limit of time and may be revoked by a certificate in writing at any time.

(2) The appropriate authority must not grant an exemption unless, having regard to the circumstances of the case and in particular to—

- (a) the conditions, if any, which it proposes to attach to the exemption; and  
(b) any other requirements imposed by or under any enactments which apply to the case,

it is satisfied that—

- (c) the health and safety of persons who are likely to be affected by the exemption will not be prejudiced in consequence of it; and  
(d) compliance with the fundamental radiation protection provisions underlying regulations 9(1) and (2)(a), 12, 13(1), 17(1) and (3), 20(1), 21(1), 22(1), 25(2) and 33(1) will be achieved.

(3) In this regulation, “appropriate authority” means—

- (a) in connection with the application of this regulation in relation to, or in relation to any activity carried out on, any nuclear premises, the ONR;  
(b) otherwise, the Executive.

### Extension outside Great Britain

**39.**—(1) Subject to paragraph (2), these Regulations apply to any work outside Great Britain to which sections 1 to 59 and 80 to 82 of the 1974 Act apply by virtue of the Health and Safety at Work etc. Act 1974 (Application outside Great Britain) Order 2013 <sup>M27</sup> as they apply to work within Great Britain.

(2) For the purposes of paragraph (1), in any case where it is not reasonably practicable for an employer to comply with the requirements of these Regulations in so far as they relate to functions being performed by a relevant doctor or by an approved dosimetry service, it is sufficient compliance with any such requirements if the employer makes arrangements affording an equivalent standard of protection for its employees and those arrangements are set out in local rules.

#### Marginal Citations

M27 S.I. 2013/240.

### Modifications relating to the Ministry of Defence etc

**40.**—(1) In this regulation, any reference to—

- (a) “visiting forces” is a reference to visiting forces within the meaning of any provision of Part 1 of the Visiting Forces Act 1952 <sup>M28</sup>, and  
(b) “headquarters or organisation” is a reference to a headquarters or organisation designated for the purposes of the International Headquarters and Defence Organisations Act 1964 <sup>M29</sup>.

(2) The Secretary of State for Defence may, in the interests of national security, by a certificate in writing exempt—

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- (a) Her Majesty's Forces;
- (b) visiting forces;
- (c) any member of a visiting force working in or attached to any headquarters or organisation; or
- (d) any person engaged in work with ionising radiation for, or on behalf of, the Secretary of State for Defence,

from all or any of the requirements or prohibitions imposed by these Regulations and any such exemption may be granted subject to conditions and to a limit of time and may be revoked at any time by a certificate in writing, except that, where any such exemption is granted, suitable arrangements must be made for the assessment and recording of doses of ionising radiation received by persons to whom the exemption relates.

(3) Regulations 5, 6 and 7 do not apply in relation to work carried out by visiting forces or any headquarters or organisation on premises under the control of such visiting force, headquarters or organisation, as the case may be, or on premises under the control of the Secretary of State for Defence.

(4) With respect to any work with ionising radiation undertaken for, or on behalf of, the Secretary of State for Defence—

- (a) the requirements of regulations 5(2) and (3), 6(4)(a) and (b), and 7(3)(a) and (b) to notify particulars specified by the appropriate authority (as defined for the purposes of those regulations) only apply in relation to the particulars that may be so specified from the list set out in paragraph (9); and
- (b) any requirement to provide any of the particulars described in paragraphs (9)(d), (e), (f), (g), (h) (i) and (k) does not apply where—
  - (i) the Secretary of State for Defence decides that the provision of such particulars will be contrary to the interests of national security; or
  - (ii) suitable alternative arrangements have been agreed with the appropriate authority (as defined in paragraph (10)).

(5) Regulation 5(4) does not apply to an employer in relation to work with ionising radiation undertaken for or on behalf of the Secretary of State for Defence, visiting forces or any headquarters or organisation.

(6) Sub-paragraph (i) of regulation 22(3) does not apply in relation to a practice carried out—

- (a) by or on behalf of the Secretary of State for Defence;
- (b) by a visiting force; or
- (c) by any member of a visiting force in or attached to any headquarters or organisation.

(7) Regulations 23(6), (7) and (8) and regulation 25(8) do not apply in relation to visiting forces or any member of a visiting force working in or attached to any headquarters or organisation.

(8) In regulation 26(1) the requirement to notify the appropriate authority (as defined for the purposes of that regulation) of a suspected overexposure and the results of the consequent investigation and assessment does not apply in relation to the exposure of—

- (a) a member of a visiting force; or
- (b) a member of a visiting force working in or attached to a headquarters or organisation.

(9) The particulars referred to in paragraph (4) are—

- (a) the name, address, telephone number and email address of the employer;
- (b) the address of the premises where or from where the work activity is to be carried out and a telephone number or email address for such premises;



- (c) the nature of the business of the employer;
  - (d) a description of the work with ionising radiation;
  - (e) particulars of the source or sources of ionising radiation including the type of electrical equipment used or operated and the nature of any radioactive substance;
  - (f) the quantities of any radioactive substance used in the work;
  - (g) the identity of any person engaged in the work;
  - (h) whether or not any source is to be used at premises other than the address given in sub-paragraph (b);
  - (i) the location and description of any premises at which the work is carried out on each occasion that it is so carried out;
  - (j) the date of notification, registration or application for consent to carry out the work activity and the date of commencement of the work activity;
  - (k) the duration of any period over which the work is carried out and the date of termination of the work activity.
- (10) In paragraph (4)(b)(ii), “appropriate authority” means—
- (a) in connection with the application of this regulation in relation to, or in relation to any activity carried out on, any nuclear premises, the ONR;
  - (b) otherwise, the Executive.

#### **Marginal Citations**

**M28** 1952 c. 67. The definition of “visiting forces” was amended by paragraph 14 of Schedule 15 to the [Criminal Justice Act 1988 \(c. 33\)](#).

**M29** 1964 c. 5.

#### **Transitional provisions and savings**

41. Schedule 8, which makes transitional provisions and savings, has effect.

#### **Modifications and revocation**

42.—(1) Schedule 9, which contains modifications to primary legislation and instruments, has effect.

(2) The Ionising Radiations Regulations 1999 <sup>M30</sup> are revoked.

#### **Marginal Citations**

**M30** [S.I. 1999/3232](#), amended by [S.I. 2001/2626](#), [S.I. 2001/2975](#), [S.I. 2002/2099](#), [S.I. 2008/960](#), [S.I. 2010/675](#), [S.I. 2011/1043](#), [S.I. 2013/755](#), [S.I. 2013/1471](#), [S.I. 2014/469](#), [S.I. 2014/3248](#) and [S.I. 2016/1154](#).

#### **Review**

43.—(1) The Secretary of State must from time to time—

- (a) carry out a review of the regulatory provision contained in these Regulations; and
- (b) publish a report setting out the conclusions of the review.

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(2) The first report must be published before 1st January 2023.

(3) Subsequent reports must be published at intervals not exceeding 5 years.

(4) Section 30(3) of the Small Business, Enterprise and Employment Act 2015<sup>M31</sup> requires that a review carried out under this regulation must, so far as is reasonable, have regard to how the Directive is implemented in other member States.

(5) Section 30(4) of the Small Business, Enterprise and Employment Act 2015 requires that a report published under this regulation must, in particular—

(a) set out the objectives intended to be achieved by the regulatory provision referred to in paragraph (1)(a);

(b) assess the extent to which those objectives are achieved;

(c) assess whether those objectives remain appropriate; and

(d) if those objectives remain appropriate, assess the extent to which they could be achieved in another way which involves less onerous regulatory provision.

(6) In this regulation, “regulatory provision” has the same meaning as in sections 28 to 32 of the Small Business, Enterprise and Employment Act 2015 (see section 32 of that Act).

**Marginal Citations**

**M31** 2015 c. 26. Section 30(3) was amended by section 19 of the [Enterprise Act 2016 \(c. 12\)](#).

Department for Work and Pensions  
27th November 2017

*Sarah Newton*  
Minister of State

## SCHEDULE 1

Regulations 5(1), 6(2) and 14(3)

### Work not required to be notified under regulation 5

1. Work with ionising radiation is not required to be notified in accordance with regulation 5 when the only such work being carried out is in one or more of the following categories—

- (a) where the concentration of activity per unit mass of a radioactive substance does not exceed the concentration specified in column 2 of Part 1 of Schedule 7 (for artificial radionuclides and naturally occurring radionuclides which are processed for their radioactive, fissile or fertile properties) or column 2 of Part 2 of Schedule 7 (for naturally occurring radionuclides which are not processed for their radioactive, fissile or fertile properties);
  - (b) where the quantity of radioactive substance involved does not exceed the quantity specified in column 3 of Part 1 of Schedule 7 (for artificial radionuclides and naturally occurring radionuclides which are processed for their radioactive, fissile or fertile properties) or column 3 of Part 2 of Schedule 7 (for naturally occurring radionuclides which are not processed for their radioactive, fissile or fertile properties);
  - (c) where the concentration of activity per unit mass or quantity of a radioactive substance does not exceed values which may be approved by the appropriate authority for specific types of work and where such work satisfies the exemption criteria set out in paragraphs 2 and 3 below;
  - (d) where apparatus contains radioactive substances in a quantity exceeding the values specified in sub-paragraphs (a) and (b) provided that—
    - (i) the apparatus is of a type approved by the Executive;
    - (ii) the apparatus is constructed in the form of a sealed source;
    - (iii) the apparatus does not under normal operating conditions cause a dose rate of more than  $1 \mu\text{Sv h}^{-1}$  at a distance of 0.1 m from any accessible surface; and
    - (iv) conditions for the disposal of the apparatus have been specified by the relevant environmental body;
  - (e) the operation of any electrical apparatus to which these Regulations apply other than apparatus referred to in sub-paragraph (f) provided that—
    - (i) the apparatus is of a type approved by the Executive; and
    - (ii) the apparatus does not under normal operating conditions cause a dose rate of more than  $1 \mu\text{Sv h}^{-1}$  at a distance of 0.1 m from any accessible surface;
  - (f) the operation of—
    - (i) any cathode ray tube intended for the display of visual images; or
    - (ii) any other electrical apparatus operating at a potential difference not exceeding 30kV, provided that the operation of the tube or apparatus does not under normal operating conditions cause a dose rate of more than  $1 \mu\text{Sv h}^{-1}$  at a distance of 0.1 m from any accessible surface; or
  - (g) where the work involves contaminated material resulting from authorised releases which the relevant environmental body has declared not to be subject to further control.
2. The criteria for the exemption from notification of work with ionising radiation are as follows:
- (a) the radiological risks to individuals caused by such work are sufficiently low as to be of no regulatory concern;
  - (b) work of such type has been found to be justified; and

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- (c) such work is inherently safe.
3. Work with ionising radiation only meets the requirements of paragraph 2(a) if—
- (a) in relation to an employee, the effective dose caused by such work does not exceed 1 mSv in a calendar year; and
  - (b) in relation to any other person, the following requirements are met in all circumstances where it is reasonably practicable to do so—
    - (i) the effective dose caused by such work from radionuclides which are not naturally occurring radionuclides does not exceed 10 µSv in a calendar year; and
    - (ii) the effective dose caused by such work from naturally occurring radionuclides does not exceed 1 mSv in a calendar year.
4. In paragraph 2(b), “found to be justified” has the meaning given by regulation 4(4) of the Justification of Practices Involving Ionising Radiation Regulations 2004 <sup>M32</sup>.

#### Marginal Citations

**M32** [S.I. 2004/1769](#), to which there are amendments not relevant to these Regulations.

5. In this Schedule—
- “appropriate authority” means—
- (a) in relation to any activity carried out exclusively or primarily on premises which are or are on—
    - (i) an authorised defence site;
    - (ii) a new nuclear build site;
    - (iii) a nuclear warship site,
 the ONR;
  - (b) otherwise, the Executive;
- “relevant environmental body”—
- (a) in relation to England, means the Environment Agency;
  - (b) in relation to Wales, means the Natural Resources Body for Wales;
  - (c) in relation to Scotland, means the Scottish Environment Protection Agency.

## SCHEDULE 2

Regulation 7(3)

Consent to carry out a practice: indicative list of information

1. Responsibilities and organisational arrangements for protection and safety.
2. Staff competences, including information and training.
3. Design features of the facility and of radiation sources.
4. Anticipated occupational and public exposures in normal operation.
5. Safety assessment of the activities and the facility in order to—
  - (a) identify ways in which potential exposures or accidental and unintended medical exposures could occur;

- (b) estimate, to the extent practicable, the probabilities and magnitude of potential exposures;
  - (c) assess the quality and extent of protection and safety provisions, including engineering features, as well as administrative procedures;
  - (d) define the operational limits and conditions of operation.
6. Emergency procedures.
  7. Maintenance, testing, inspection and servicing so as to ensure that the radiation source and the facility continue to meet the design requirements, operational limits and conditions of operation throughout their lifetime.
  8. Management of radioactive waste and arrangements for the disposal of such waste, in accordance with applicable regulatory requirements.
  9. Management of disused sources.
  10. Quality assurance.

### SCHEDULE 3

Regulations 2(1) and 12

#### Dose limits

## PART 1

### Classes of persons to whom dose limits apply

#### **Employees and trainees of 18 years of age or above**

1. For the purposes of regulation 12(1), the limit on effective dose for any employee or trainee, being of 18 years of age or above, is 20 mSv in any calendar year.
2. Without prejudice to paragraph 1—
  - (a) the limit on equivalent dose for the lens of the eye is—
    - (i) 20 mSv in a calendar year; or
    - (ii) in accordance with conditions approved by the Executive from time to time, 100 mSv in any period of five consecutive calendar years subject to a maximum equivalent dose of 50 mSv in any single calendar year;
  - (b) the limit on equivalent dose for the skin is 500 mSv in a calendar year as applied to the dose averaged over any area of 1 cm<sup>2</sup> regardless of the area exposed;
  - (c) the limit on equivalent dose for the extremities is 500 mSv in a calendar year.

#### **Trainees aged under 18 years**

3. For the purposes of regulation 12(1), the limit on effective dose for any trainee under 18 years of age is 6 mSv in any calendar year.
4. Without prejudice to paragraph 3—
  - (a) the limit on equivalent dose for the lens of the eye is 15 mSv in a calendar year;
  - (b) the limit on equivalent dose for the skin is 150 mSv in a calendar year as applied to the dose averaged over any area of 1 cm<sup>2</sup> regardless of the area exposed;

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- (c) the limit on equivalent dose for the extremities is 150 mSv in a calendar year.

### Other persons

5. Subject to paragraph 6, for the purposes of regulation 12(1) the limit on effective dose for any person other than an employee or trainee referred to in paragraph 1 or 3, including any person below the age of 16, is 1 mSv in any calendar year.

6. Paragraph 5 does not apply in relation to any person (not being a carer and comforter) who may be exposed to ionising radiation resulting from the medical exposure of another and in such a case the limit on effective dose for any such person is 5 mSv in any period of 5 consecutive calendar years.

7. Without prejudice to paragraphs 5 and 6—

- (a) the limit on equivalent dose for the lens of the eye is 15 mSv in any calendar year;
- (b) the limit on equivalent dose for the skin is 50 mSv in any calendar year averaged over any 1 cm<sup>2</sup> area regardless of the area exposed;
- (c) the limit on equivalent dose for the extremities is 50 mSv in a calendar year.

## PART 2

8. For the purposes of regulation 12(2), the limit on effective dose for employees or trainees of 18 years or above is 100 mSv in any period of five consecutive calendar years subject to a maximum effective dose of 50 mSv in any single calendar year.

9. Without prejudice to paragraph 8—

- (a) the limit on equivalent dose for the lens of the eye is—
- (i) 20 mSv in a calendar year; or
- (ii) in accordance with conditions approved by the Executive from time to time, 100 mSv in any period of five consecutive calendar years subject to a maximum equivalent dose of 50 mSv in any single calendar year;
- (b) the limit on equivalent dose for the skin is 500 mSv in a calendar year as applied to the dose averaged over any area of 1 cm<sup>2</sup> regardless of the area exposed;
- (c) the limit on equivalent dose for the extremities is 500 mSv in a calendar year.

10. The employer must ensure that any employee in respect of whom regulation 12(2) applies is not exposed to ionising radiation to an extent that any dose limit specified in paragraphs 8 or 9 is exceeded.

11. An employer must not put into effect a system of dose limitation pursuant to regulation 12(2) unless—

- (a) the radiation protection adviser and any employees who are affected have been consulted;
- (b) any employees affected and the approved dosimetry service have been informed in writing of the decision and of the reasons for that decision; and
- (c) notice has been given to the appropriate authority at least 28 days (or such shorter period as the appropriate authority may allow) before the decision is put into effect giving the reasons for the decision.

12. Where there is reasonable cause to believe that any employee has been exposed to an effective dose greater than 20 mSv in any calendar year, the employer must, as soon as is practicable—

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- (a) undertake an investigation into the circumstances of the exposure for the purpose of determining whether the dose limit referred to in paragraph 8 is likely to be complied with; and
- (b) notify the appropriate authority of that suspected exposure.

**13.** An employer must review the decision to put into effect a system of dose limitation pursuant to regulation 12(2) at appropriate intervals and in any event not less than once every five years.

**14.** Where as a result of a review undertaken pursuant to paragraph 13 an employer proposes to revert to a system of annual dose limitation pursuant to regulation 12(1), the provisions of paragraph 11 apply as if the reference in that paragraph to regulation 12(2) was a reference to regulation 12(1).

**15.** Where an employer puts into effect a system of dose limitation in pursuance of regulation 12(2), the employer must record the reasons for that decision and must ensure that the record is preserved until any person subject to the system of dose limitation under regulation 12(2) has or would have attained the age of 75 years but in any event for at least 30 years from the making of the record.

**16.** In any case where—

- (a) the dose limits specified in paragraph 8 are being applied by an employer in respect of an employee; and
- (b) the appropriate authority is not satisfied that it is impracticable for that employee to be subject to the dose limit specified in paragraph 1 of Part 1 of this Schedule,

the appropriate authority may require the employer to apply the dose limit specified in paragraph 1 of Part 1 with effect from such time as the appropriate authority may consider appropriate having regard to the interests of the employee concerned.

**17.** In any case where, as a result of a review undertaken pursuant to paragraph 13, an employer proposes to revert to an annual dose limitation in accordance with regulation 12(1), the appropriate authority may require the employer to defer the implementation of that decision to such time as the appropriate authority may consider appropriate having regard to the interests of the employee concerned.

**18.** Any person who is aggrieved by the decision of the appropriate authority taken pursuant to paragraphs 16 or 17 may appeal to the Secretary of State.

**19.** Sub-sections (2) to (6) of section 44 of the 1974 Act apply for the purposes of paragraph 18 as they apply to an appeal under section 44(1) of that Act.

**20.** The Health and Safety Licensing Appeals (Hearings Procedure) Rules 1974 <sup>M33</sup>, as respects England and Wales, and the Health and Safety Licensing Appeals (Hearings Procedure) (Scotland) Rules 1974 <sup>M34</sup>, as respects Scotland, apply to an appeal under paragraph 18 as they apply to an appeal under section 44(1) of the 1974 Act, but with the modification that references to a licensing authority are to be read as references to the appropriate authority.

**Marginal Citations**

**M33** S.I. 1974/2040.

**M34** S.I. 1974/2068.

**21.** In this Part, “appropriate authority” means—

- (a) in connection with the application of this Part in relation to, or in relation to any activity carried out on, any nuclear premises, the ONR;
- (b) otherwise, the Executive.

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#### SCHEDULE 4

Regulation 14(1)

Matters in respect of which a radiation protection adviser must be consulted

1. The implementation of requirements as to controlled and supervised areas.
2. The prior examination of plans for installations and the acceptance into service of new or modified sources of ionising radiation in relation to any engineering controls, design features, safety features and warning devices provided to restrict exposure to ionising radiation.
3. The regular calibration of equipment provided for monitoring levels of ionising radiation and the regular checking that such equipment is serviceable and correctly used.
4. The periodic examination and testing of engineering controls, design features, safety features and warning devices and regular checking of systems of work provided to restrict exposure to ionising radiation.

#### SCHEDULE 5

Regulation 22(5)

Particulars to be entered in the radiation passbook

1. Individual serial number of the passbook.
2. A statement that the passbook has been approved by the Executive for the purpose of these Regulations.
3. Date of issue of the passbook by the approved dosimetry service.
4. The name, telephone number and mark of endorsement of the issuing approved dosimetry service.
5. The name, address, telephone number and e-mail address of the employer.
6. Full name (surname, forenames), date of birth, gender and national insurance number of the classified outside worker to whom the passbook has been issued.
7. Date of the last medical review of the classified outside worker and the relevant classification in the health record maintained under regulation 25 as fit, fit subject to conditions (which must be specified) or unfit.
8. The relevant dose limits applicable to the classified outside worker to whom the passbook has been issued.
9. The cumulative dose assessment in mSv for the year to date for the classified outside worker, external (whole body, organ or tissue) and/or internal as appropriate and the date of the end of the last assessment period.
10. In respect of services performed by the classified outside worker—
  - (a) the name and address of the employer responsible for the controlled area;
  - (b) the period covered by the performance of the services;
  - (c) the following estimated dose information, as appropriate—
    - (i) an estimate of any whole body effective dose in mSv received by the classified outside worker;
    - (ii) in the event of non-uniform exposure, an estimate of the equivalent dose in mSv to organs and tissues as appropriate; and



- (iii) in the event of internal contamination, an estimate of the activity taken in or the committed dose.

SCHEDULE 6

Regulation 25(2)(b)

Particulars to be contained in a health record

The following particulars must be contained in a health record made for the purposes of regulation 25(2)(b)—

- (a) the employee's—
  - (i) full name;
  - (ii) sex;
  - (iii) date of birth;
  - (iv) permanent address; and
  - (v) National Insurance number;
- (b) the date of the employee's commencement as a classified person in present employment;
- (c) the nature of the employee's employment;
- (d) the date and type of the last medical examination or health review carried out in respect of the employee;
- (e) a statement by the relevant doctor made as a result of the last medical examination or health review carried out in respect of the employee classifying the employee as fit, fit subject to conditions (which should be specified) or unfit;
- (f) in relation to each medical examination and health review, the name and signature of the relevant doctor;
- (g) the name and address of the approved dosimetry service with whom arrangements have been made for maintaining the dose record in accordance with regulation 22.

SCHEDULE 7

Quantities and concentrations of radionuclides

Regulations 2(4), 6(2), 31(1), 31(3) and Schedule 1

**PART 1**

**Table of artificial radionuclides and naturally occurring radionuclides (which are processed for their radioactive, fissile or fertile properties)**

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
<i>Radionuclide name,</i>	<i>Concentration for: Notification</i>	<i>Quantity for Notification</i>	<i>Concentration for Registration</i>	<i>Quantity for notification</i>	<i>Quantity for notification</i>

<sup>1</sup> Potassium salts in quantities less than 1,000kg are exempt.

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<i>symbol, isotope</i>	<i>(any amount of radioactive material); Registration (amounts of radioactive material that exceed 1,000kg)</i>	<i>(amounts of radioactive material that do not exceed 1,000kg)</i>	<i>of occurrences</i>	<i>of occurrences</i>	
	<i>Regulation 5(1) and Schedule 1, paragraph 1(a);regulation (f) (Bq/g)</i>	<i>Regulation 5(1) and Schedule 1, paragraph 1(b) (Bq)</i>	<i>Regulation 6(2)(e) (Bq/g)</i>	<i>Regulation 31(1) (Bq)</i>	<i>Regulation 31(3) (Bq)</i>
Hydrogen					
H-3 (tritiated compounds)	10 <sup>2</sup>	10 <sup>9</sup>	10 <sup>6</sup>	10 <sup>12</sup>	10 <sup>10</sup>
Beryllium					
Be-7	10	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>12</sup>	10 <sup>8</sup>
Carbon					
C-11	0.01	10 <sup>6</sup>	10	10 <sup>13</sup>	10 <sup>7</sup>
C-11 (monoxide)	0.01	10 <sup>9</sup>	10	10 <sup>12</sup>	10 <sup>10</sup>
C-11 (dioxide)	0.01	10 <sup>9</sup>	10	10 <sup>12</sup>	10 <sup>10</sup>
C-14	1	10 <sup>7</sup>	10 <sup>4</sup>	10 <sup>11</sup>	10 <sup>8</sup>
Oxygen					
O-15	0.01	10 <sup>9</sup>	10 <sup>2</sup>	10 <sup>10</sup>	
Fluorine					
F-18	10	10 <sup>6</sup>	10	10 <sup>13</sup>	10 <sup>7</sup>
Sodium					
Na-22	0.1	10 <sup>6</sup>	10	10 <sup>10</sup>	10 <sup>7</sup>
Na-24	0.1	10 <sup>5</sup>	10	10 <sup>11</sup>	10 <sup>6</sup>
Silicon					
Si-31	10 <sup>3</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>13</sup>	10 <sup>7</sup>
Phosphorus					
P-32	10 <sup>3</sup>	10 <sup>5</sup>	10 <sup>3</sup>	10 <sup>10</sup>	10 <sup>6</sup>
P-33	10 <sup>3</sup>	10 <sup>8</sup>	10 <sup>5</sup>	10 <sup>11</sup>	10 <sup>9</sup>
Sulphur					

<sup>1</sup> Potassium salts in quantities less than 1,000kg are exempt.

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S-35	10 <sup>2</sup>	10 <sup>8</sup>	10 <sup>5</sup>	10 <sup>11</sup>	10 <sup>9</sup>
Chlorine					
Cl-36	1	10 <sup>6</sup>	10 <sup>4</sup>	10 <sup>10</sup>	10 <sup>7</sup>
Cl-38	10	10 <sup>5</sup>	10	10 <sup>13</sup>	10 <sup>6</sup>
Argon					
Ar-37	0.01	10 <sup>8</sup>	10 <sup>6</sup>	10 <sup>13</sup>	
Ar-41	0.01	10 <sup>9</sup>	10 <sup>2</sup>	10 <sup>9</sup>	
Potassium					
K-40 <sup>1</sup>	1	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>10</sup>	10 <sup>7</sup>
K-42	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>12</sup>	10 <sup>7</sup>
K-43	10	10 <sup>6</sup>	10	10 <sup>11</sup>	10 <sup>7</sup>
Calcium					
Ca-45	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>4</sup>	10 <sup>10</sup>	10 <sup>8</sup>
Ca-47	10	10 <sup>6</sup>	10	10 <sup>11</sup>	10 <sup>7</sup>
Scandium					
Sc-46	0.1	10 <sup>6</sup>	10	10 <sup>10</sup>	10 <sup>7</sup>
Sc-47	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Sc-48	1	10 <sup>5</sup>	10	10 <sup>11</sup>	10 <sup>6</sup>
Vanadium					
V-48	1	10 <sup>5</sup>	10	10 <sup>10</sup>	10 <sup>6</sup>
Chromium					
Cr-51	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>12</sup>	10 <sup>8</sup>
Manganese					
Mn-51	10	10 <sup>5</sup>	10	10 <sup>13</sup>	10 <sup>6</sup>
Mn-52	1	10 <sup>5</sup>	10	10 <sup>10</sup>	10 <sup>6</sup>
Mn-52m	10	10 <sup>5</sup>	10	10 <sup>13</sup>	10 <sup>6</sup>
Mn-53	10 <sup>2</sup>	10 <sup>9</sup>	10 <sup>4</sup>	10 <sup>12</sup>	10 <sup>10</sup>
Mn-54	0.1	10 <sup>6</sup>	10	10 <sup>11</sup>	10 <sup>7</sup>
Mn-56	10	10 <sup>5</sup>	10	10 <sup>12</sup>	10 <sup>6</sup>
Iron					
Fe-52+	10	10 <sup>6</sup>	10	10 <sup>12</sup>	10 <sup>7</sup>
Fe-55	10 <sup>3</sup>	10 <sup>6</sup>	10 <sup>4</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Fe-59	1	10 <sup>6</sup>	10	10 <sup>10</sup>	10 <sup>7</sup>

<sup>1</sup> Potassium salts in quantities less than 1,000kg are exempt.

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Cobalt					
Co-55	10	10 <sup>6</sup>	10	10 <sup>11</sup>	10 <sup>7</sup>
Co-56	0.1	10 <sup>5</sup>	10	10 <sup>10</sup>	10 <sup>6</sup>
Co-57	1	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Co-58	1	10 <sup>6</sup>	10	10 <sup>10</sup>	10 <sup>7</sup>
Co-58m	10 <sup>4</sup>	10 <sup>7</sup>	10 <sup>4</sup>	10 <sup>13</sup>	10 <sup>8</sup>
Co-60	0.1	10 <sup>5</sup>	10	10 <sup>10</sup>	10 <sup>6</sup>
Co-60m	10 <sup>3</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>16</sup>	10 <sup>7</sup>
Co-61	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>13</sup>	10 <sup>7</sup>
Co-62m	10	10 <sup>5</sup>	10	10 <sup>13</sup>	10 <sup>6</sup>
Nickel					
Ni-59	10 <sup>2</sup>	10 <sup>8</sup>	10 <sup>4</sup>	10 <sup>11</sup>	10 <sup>9</sup>
Ni-63	10 <sup>2</sup>	10 <sup>8</sup>	10 <sup>5</sup>	10 <sup>11</sup>	10 <sup>9</sup>
Ni-65	10	10 <sup>6</sup>	10	10 <sup>13</sup>	10 <sup>7</sup>
Copper					
Cu-64	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>12</sup>	10 <sup>7</sup>
Zinc					
Zn-65	0.1	10 <sup>6</sup>	10	10 <sup>10</sup>	10 <sup>7</sup>
Zn-69	10 <sup>3</sup>	10 <sup>6</sup>	10 <sup>4</sup>	10 <sup>14</sup>	10 <sup>7</sup>
Zn-69m+	10	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>12</sup>	10 <sup>7</sup>
Gallium					
Ga-68	0.01	10 <sup>5</sup>	10	10 <sup>13</sup>	10 <sup>6</sup>
Ga-72	10	10 <sup>5</sup>	10	10 <sup>11</sup>	10 <sup>6</sup>
Germanium					
Ge-68+	0.01	10 <sup>5</sup>	10	10 <sup>10</sup>	10 <sup>6</sup>
Ge-71	10 <sup>4</sup>	10 <sup>8</sup>	10 <sup>4</sup>	10 <sup>13</sup>	10 <sup>9</sup>
Arsenic					
As-73	10 <sup>3</sup>	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>11</sup>	10 <sup>8</sup>
As-74	10	10 <sup>6</sup>	10	10 <sup>11</sup>	10 <sup>7</sup>
As-76	10	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>6</sup>
As-77	10 <sup>3</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>12</sup>	10 <sup>7</sup>
Selenium					
Se-75	1	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>

<sup>1</sup> Potassium salts in quantities less than 1,000kg are exempt.

Bromine					
Br-82	1	10 <sup>6</sup>	10	10 <sup>11</sup>	10 <sup>7</sup>
Krypton					
Kr-74	0.01	10 <sup>9</sup>	10 <sup>2</sup>	10 <sup>9</sup>	
Kr-76	0.01	10 <sup>9</sup>	10 <sup>2</sup>	10 <sup>10</sup>	
Kr-77	0.01	10 <sup>9</sup>	10 <sup>2</sup>	10 <sup>9</sup>	
Kr-79	0.01	10 <sup>5</sup>	10 <sup>3</sup>	10 <sup>10</sup>	
Kr-81	0.01	10 <sup>7</sup>	10 <sup>4</sup>	10 <sup>11</sup>	
Kr-83m	0.01	10 <sup>12</sup>	10 <sup>5</sup>	10 <sup>12</sup>	
Kr-85	0.01	10 <sup>4</sup>	10 <sup>5</sup>	10 <sup>12</sup>	
Kr-85m	0.01	10 <sup>10</sup>	10 <sup>3</sup>	10 <sup>10</sup>	
Kr-87	0.01	10 <sup>9</sup>	10 <sup>2</sup>	10 <sup>9</sup>	
Kr-88	0.01	10 <sup>9</sup>	10 <sup>2</sup>	10 <sup>9</sup>	
Rubidium					
Rb-86	10 <sup>2</sup>	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>6</sup>
Strontium					
Sr-85	1	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Sr-85m	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>2</sup>	10 <sup>13</sup>	10 <sup>8</sup>
Sr-87m	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>13</sup>	10 <sup>7</sup>
Sr-89	10 <sup>3</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>10</sup>	10 <sup>7</sup>
Sr-90+	1	10 <sup>4</sup>	10 <sup>2</sup>	10 <sup>9</sup>	10 <sup>5</sup>
Sr-91+	10	10 <sup>5</sup>	10	10 <sup>12</sup>	10 <sup>6</sup>
Sr-92	10	10 <sup>6</sup>	10	10 <sup>12</sup>	10 <sup>7</sup>
Yttrium					
Y-90	10 <sup>3</sup>	10 <sup>5</sup>	10 <sup>3</sup>	10 <sup>11</sup>	10 <sup>6</sup>
Y-91	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>10</sup>	10 <sup>7</sup>
Y-91m	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>13</sup>	10 <sup>7</sup>
Y-92	10 <sup>2</sup>	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>12</sup>	10 <sup>6</sup>
Y-93	10 <sup>2</sup>	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>12</sup>	10 <sup>6</sup>
Zirconium					
Zr-93+	10	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>9</sup>	10 <sup>8</sup>
Zr-95+	1	10 <sup>6</sup>	10	10 <sup>10</sup>	10 <sup>7</sup>

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Zr-97+	10	10 <sup>5</sup>	10	10 <sup>11</sup>	10 <sup>6</sup>
Niobium					
Nb-93m	10	10 <sup>7</sup>	10 <sup>4</sup>	10 <sup>11</sup>	10 <sup>8</sup>
Nb-94	0.1	10 <sup>6</sup>	10	10 <sup>9</sup>	10 <sup>7</sup>
Nb-95	1	10 <sup>6</sup>	10	10 <sup>11</sup>	10 <sup>7</sup>
Nb-97+	10	10 <sup>6</sup>	10	10 <sup>13</sup>	10 <sup>7</sup>
Nb-98	10	10 <sup>5</sup>	10	10 <sup>13</sup>	10 <sup>6</sup>
Molybdenum					
Mo-90	10	10 <sup>6</sup>	10	10 <sup>12</sup>	10 <sup>7</sup>
Mo-93	10	10 <sup>8</sup>	10 <sup>3</sup>	10 <sup>11</sup>	10 <sup>9</sup>
Mo-99+	10	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Mo-101+	10	10 <sup>6</sup>	10	10 <sup>13</sup>	10 <sup>7</sup>
Technetium					
Tc-96	1	10 <sup>6</sup>	10	10 <sup>11</sup>	10 <sup>7</sup>
Tc-96m	10 <sup>3</sup>	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>14</sup>	10 <sup>8</sup>
Tc-97	10	10 <sup>8</sup>	10 <sup>3</sup>	10 <sup>12</sup>	10 <sup>9</sup>
Tc-97m	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>10</sup>	10 <sup>8</sup>
Tc-99	1	10 <sup>7</sup>	10 <sup>4</sup>	10 <sup>10</sup>	10 <sup>8</sup>
Tc-99m	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>2</sup>	10 <sup>13</sup>	10 <sup>8</sup>
Ruthenium					
Ru-97	10	10 <sup>7</sup>	10 <sup>2</sup>	10 <sup>12</sup>	10 <sup>8</sup>
Ru-103+	1	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>10</sup>	10 <sup>7</sup>
Ru-105+	10	10 <sup>6</sup>	10	10 <sup>12</sup>	10 <sup>7</sup>
Ru-106+	0.1	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>9</sup>	10 <sup>6</sup>
Rhodium					
Rh-103m	10 <sup>4</sup>	10 <sup>8</sup>	10 <sup>4</sup>	10 <sup>15</sup>	10 <sup>9</sup>
Rh-105	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>2</sup>	10 <sup>12</sup>	10 <sup>8</sup>
Palladium					
Pd-103+	10 <sup>3</sup>	10 <sup>8</sup>	10 <sup>3</sup>	10 <sup>11</sup>	10 <sup>9</sup>
Pd-109+	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>12</sup>	10 <sup>7</sup>
Silver					
Ag-105	1	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>

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Ag-108m+	0.1	10 <sup>6</sup>	10	10 <sup>10</sup>	10 <sup>7</sup>
Ag-110m+	0.1	10 <sup>6</sup>	10	10 <sup>10</sup>	10 <sup>7</sup>
Ag-111	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Cadmium					
Cd-109+	1	10 <sup>6</sup>	10 <sup>4</sup>	10 <sup>10</sup>	10 <sup>7</sup>
Cd-115+	10	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Cd-115m+	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>10</sup>	10 <sup>7</sup>
Indium					
In-111	10	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>
In-113m	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>13</sup>	10 <sup>7</sup>
In-114m+	10	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>10</sup>	10 <sup>7</sup>
In-115m	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>13</sup>	10 <sup>7</sup>
Tin					
Sn-113+	1	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>11</sup>	10 <sup>8</sup>
Sn-125	10	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>10</sup>	10 <sup>6</sup>
Antimony					
Sb-122	10	10 <sup>4</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>5</sup>
Sb-124	1	10 <sup>6</sup>	10	10 <sup>10</sup>	10 <sup>7</sup>
Sb-125+	0.1	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>10</sup>	10 <sup>7</sup>
Tellurium					
Te-123m	1	10 <sup>7</sup>	10 <sup>2</sup>	10 <sup>10</sup>	10 <sup>8</sup>
Te-125m	10 <sup>3</sup>	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>10</sup>	10 <sup>8</sup>
Te-127	10 <sup>3</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>12</sup>	10 <sup>7</sup>
Te-127m+	10	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>10</sup>	10 <sup>8</sup>
Te-129	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>14</sup>	10 <sup>7</sup>
Te-129m+	10	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>10</sup>	10 <sup>7</sup>
Te-131	10 <sup>2</sup>	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>14</sup>	10 <sup>6</sup>
Te-131m+	10	10 <sup>6</sup>	10	10 <sup>11</sup>	10 <sup>7</sup>
Te-132+	1	10 <sup>7</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>8</sup>
Te-133	10	10 <sup>5</sup>	10	10 <sup>14</sup>	10 <sup>6</sup>
Te-133m	10	10 <sup>5</sup>	10	10 <sup>13</sup>	10 <sup>6</sup>
Te-134	10	10 <sup>6</sup>	10	10 <sup>13</sup>	10 <sup>7</sup>

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Iodine					
I-123	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>2</sup>	10 <sup>12</sup>	10 <sup>8</sup>
I-125	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>10</sup>	10 <sup>7</sup>
I-126	10	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>10</sup>	10 <sup>7</sup>
I-129	0.01	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>9</sup>	10 <sup>6</sup>
I-130	10	10 <sup>6</sup>	10	10 <sup>11</sup>	10 <sup>7</sup>
I-131	10	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>10</sup>	10 <sup>7</sup>
I-132	10	10 <sup>5</sup>	10	10 <sup>12</sup>	10 <sup>6</sup>
I-133	10	10 <sup>6</sup>	10	10 <sup>11</sup>	10 <sup>7</sup>
I-134	10	10 <sup>5</sup>	10	10 <sup>13</sup>	10 <sup>6</sup>
I-135	10	10 <sup>6</sup>	10	10 <sup>12</sup>	10 <sup>7</sup>
Xenon					
Xe-131m	0.01	10 <sup>4</sup>	10 <sup>4</sup>	10 <sup>11</sup>	
Xe-133	0.01	10 <sup>4</sup>	10 <sup>3</sup>	10 <sup>11</sup>	
Xe-135	0.01	10 <sup>10</sup>	10 <sup>3</sup>	10 <sup>10</sup>	
Caesium					
Cs-129	10	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>12</sup>	10 <sup>6</sup>
Cs-131	10 <sup>3</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>12</sup>	10 <sup>7</sup>
Cs-132	10	10 <sup>5</sup>	10	10 <sup>11</sup>	10 <sup>6</sup>
Cs-134	0.1	10 <sup>4</sup>	10	10 <sup>10</sup>	10 <sup>5</sup>
Cs-134m	10 <sup>3</sup>	10 <sup>5</sup>	10 <sup>3</sup>	10 <sup>14</sup>	10 <sup>6</sup>
Cs-135	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>4</sup>	10 <sup>11</sup>	10 <sup>8</sup>
Cs-136	1	10 <sup>5</sup>	10	10 <sup>10</sup>	10 <sup>6</sup>
Cs-137+	0.1	10 <sup>4</sup>	10	10 <sup>10</sup>	10 <sup>5</sup>
Cs-138	10	10 <sup>4</sup>	10	10 <sup>13</sup>	10 <sup>5</sup>
Barium					
Ba-131	10	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Ba-140+	1	10 <sup>5</sup>	10	10 <sup>11</sup>	10 <sup>6</sup>
Lanthanum					
La-140	1	10 <sup>5</sup>	10	10 <sup>11</sup>	10 <sup>6</sup>
Cerium					
Ce-139	1	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>

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Ce-141	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>2</sup>	10 <sup>10</sup>	10 <sup>8</sup>
Ce-143	10	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Ce-144+	10	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>9</sup>	10 <sup>6</sup>
Praseodymium					
Pr-142	10 <sup>2</sup>	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>12</sup>	10 <sup>6</sup>
Pr-143	10 <sup>3</sup>	10 <sup>6</sup>	10 <sup>4</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Neodymium					
Nd-147	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Nd-149	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>13</sup>	10 <sup>7</sup>
Promethium					
Pm-147	10 <sup>3</sup>	10 <sup>7</sup>	10 <sup>4</sup>	10 <sup>10</sup>	10 <sup>8</sup>
Pm-149	10 <sup>3</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Samarium					
Sm-151	10 <sup>3</sup>	10 <sup>8</sup>	10 <sup>4</sup>	10 <sup>10</sup>	10 <sup>9</sup>
Sm-153	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Europium					
Eu-152	0.1	10 <sup>6</sup>	10	10 <sup>9</sup>	10 <sup>7</sup>
Eu-152m	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>12</sup>	10 <sup>7</sup>
Eu-154	0.1	10 <sup>6</sup>	10	10 <sup>9</sup>	10 <sup>7</sup>
Eu-155	1	10 <sup>7</sup>	10 <sup>2</sup>	10 <sup>10</sup>	10 <sup>8</sup>
Gadolinium					
Gd-153	10	10 <sup>7</sup>	10 <sup>2</sup>	10 <sup>10</sup>	10 <sup>8</sup>
Gd-159	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>12</sup>	10 <sup>7</sup>
Terbium					
Tb-160	1	10 <sup>6</sup>	1	10 <sup>10</sup>	10 <sup>7</sup>
Dysprosium					
Dy-165	10 <sup>3</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>13</sup>	10 <sup>7</sup>
Dy-166	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Holmium					
Ho-166	10 <sup>2</sup>	10 <sup>5</sup>	10 <sup>3</sup>	10 <sup>11</sup>	10 <sup>6</sup>
Erbium					
Er-169	10 <sup>3</sup>	10 <sup>7</sup>	10 <sup>4</sup>	10 <sup>11</sup>	10 <sup>8</sup>
Er-171	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>12</sup>	10 <sup>7</sup>
Thulium					

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Tm-170	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>10</sup>	10 <sup>7</sup>
Tm-171	10 <sup>3</sup>	10 <sup>8</sup>	10 <sup>4</sup>	10 <sup>11</sup>	10 <sup>9</sup>
Ytterbium					
Yb-175	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>11</sup>	10 <sup>8</sup>
Lutetium					
Lu-177	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>11</sup>	10 <sup>8</sup>
Hafnium					
Hf-181	1	10 <sup>6</sup>	10	10 <sup>10</sup>	10 <sup>7</sup>
Tantalum					
Ta-182	0.1	10 <sup>4</sup>	10	10 <sup>10</sup>	10 <sup>5</sup>
Tungsten					
W-181	10	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>12</sup>	10 <sup>8</sup>
W-185	10 <sup>3</sup>	10 <sup>7</sup>	10 <sup>4</sup>	10 <sup>11</sup>	10 <sup>8</sup>
W-187	10	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>12</sup>	10 <sup>7</sup>
Rhenium					
Re-186	10 <sup>3</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Re-188	10 <sup>2</sup>	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>12</sup>	10 <sup>6</sup>
Osmium					
Os-185	1	10 <sup>6</sup>	10	10 <sup>11</sup>	10 <sup>7</sup>
Os-191	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>8</sup>
Os-191m	10 <sup>3</sup>	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>12</sup>	10 <sup>8</sup>
Os-193	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Iridium					
Ir-190	1	10 <sup>6</sup>	10	10 <sup>10</sup>	10 <sup>7</sup>
Ir-192	1	10 <sup>4</sup>	10	10 <sup>10</sup>	10 <sup>5</sup>
Ir-194	10 <sup>2</sup>	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>6</sup>
Platinum					
Pt-191	10	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Pt-193m	10 <sup>3</sup>	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>12</sup>	10 <sup>8</sup>
Pt-197	10	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>12</sup>	10 <sup>7</sup>
Pt-197m	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>14</sup>	10 <sup>7</sup>
Gold					
Au-198	10	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>

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Au-199	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Mercury					
Hg-197	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>2</sup>	10 <sup>12</sup>	10 <sup>8</sup>
Hg-197m	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>12</sup>	10 <sup>7</sup>
Hg-203	10	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>6</sup>
Thallium					
Tl-200	10	10 <sup>6</sup>	10	10 <sup>11</sup>	10 <sup>7</sup>
Tl-201	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>12</sup>	10 <sup>7</sup>
Tl-202	10	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>
Tl-204	1	10 <sup>4</sup>	10 <sup>4</sup>	10 <sup>11</sup>	10 <sup>5</sup>
Lead					
Pb-203	10	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>12</sup>	10 <sup>7</sup>
Pb-210+	0.01	10 <sup>4</sup>	10	10 <sup>8</sup>	10 <sup>5</sup>
Pb-212+	1	10 <sup>5</sup>	10	10 <sup>10</sup>	10 <sup>6</sup>
Bismuth					
Bi-206	1	10 <sup>5</sup>	10	10 <sup>10</sup>	10 <sup>6</sup>
Bi-207	0.1	10 <sup>6</sup>	10	10 <sup>10</sup>	10 <sup>7</sup>
Bi-210	10	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>9</sup>	10 <sup>7</sup>
Bi-212+	1	10 <sup>5</sup>	10	10 <sup>11</sup>	10 <sup>6</sup>
Polonium					
Po-203	10	10 <sup>6</sup>	10	10 <sup>13</sup>	10 <sup>7</sup>
Po-205	10	10 <sup>6</sup>	10	10 <sup>12</sup>	10 <sup>7</sup>
Po-207	10	10 <sup>6</sup>	10	10 <sup>12</sup>	10 <sup>7</sup>
Po-210	0.01	10 <sup>4</sup>	10	10 <sup>7</sup>	10 <sup>5</sup>
Astatine					
At-211	10 <sup>3</sup>	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>10</sup>	10 <sup>8</sup>
Radon					
Rn-220+	0.01	10 <sup>7</sup>	10 <sup>4</sup>	10 <sup>8</sup>	10 <sup>8</sup>
Rn-222+	0.01	10 <sup>8</sup>	10	10 <sup>9</sup>	10 <sup>9</sup>
Radium					
Ra-223+	1	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>6</sup>
Ra-224+	1	10 <sup>5</sup>	10	10 <sup>8</sup>	10 <sup>6</sup>
Ra-225	10	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>6</sup>

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Ra-226+	0.01	10 <sup>4</sup>	10	10 <sup>7</sup>	10 <sup>5</sup>
Ra-227	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>13</sup>	10 <sup>7</sup>
Ra-228+	0.01	10 <sup>5</sup>	10	10 <sup>8</sup>	10 <sup>6</sup>
Actinium					
Ac-228	1	10 <sup>6</sup>	10	10 <sup>10</sup>	10 <sup>7</sup>
Thorium					
Th-226+	10 <sup>3</sup>	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>11</sup>	10 <sup>8</sup>
Th-227	1	10 <sup>4</sup>	10	10 <sup>7</sup>	10 <sup>5</sup>
Th-228+	0.1	10 <sup>4</sup>	1	10 <sup>6</sup>	10 <sup>5</sup>
Th-229+	0.1	10 <sup>3</sup>	1	10 <sup>6</sup>	10 <sup>4</sup>
Th-230	0.1	10 <sup>4</sup>	1	10 <sup>6</sup>	10 <sup>5</sup>
Th-231	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>12</sup>	10 <sup>8</sup>
Th-232	0.01	10 <sup>4</sup>	10	10 <sup>6</sup>	10 <sup>5</sup>
Th-234+	10	10 <sup>5</sup>	10 <sup>3</sup>	10 <sup>10</sup>	10 <sup>6</sup>
Protactinium					
Pa-230	10	10 <sup>6</sup>	10	10 <sup>8</sup>	10 <sup>7</sup>
Pa-231	0.01	10 <sup>3</sup>	1	10 <sup>6</sup>	10 <sup>4</sup>
Pa-233	10	10 <sup>7</sup>	10 <sup>2</sup>	10 <sup>10</sup>	10 <sup>8</sup>
Uranium					
U-230+	10	10 <sup>5</sup>	10	10 <sup>7</sup>	10 <sup>6</sup>
U-231	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>8</sup>
U-232+	0.1	10 <sup>3</sup>	1	10 <sup>6</sup>	10 <sup>4</sup>
U-233	1	10 <sup>4</sup>	10	10 <sup>7</sup>	10 <sup>5</sup>
U-234	1	10 <sup>4</sup>	10	10 <sup>7</sup>	10 <sup>5</sup>
U-235+	1	10 <sup>4</sup>	10	10 <sup>7</sup>	10 <sup>5</sup>
U-236	10	10 <sup>4</sup>	10	10 <sup>7</sup>	10 <sup>5</sup>
U-237	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>7</sup>
U-238+	1	10 <sup>4</sup>	10	10 <sup>7</sup>	10 <sup>5</sup>
U-239	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>14</sup>	10 <sup>7</sup>
U-240	0.01	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>12</sup>	10 <sup>8</sup>
U-240+	10 <sup>2</sup>	10 <sup>6</sup>	10	10 <sup>11</sup>	10 <sup>7</sup>
Neptunium					

<sup>1</sup> Potassium salts in quantities less than 1,000kg are exempt.

**Status:** Point in time view as at 01/01/2018.**Changes to legislation:** There are currently no known outstanding effects for the  
The Ionising Radiations Regulations 2017. (See end of Document for details)

Np-237+	1	10 <sup>3</sup>	1	10 <sup>7</sup>	10 <sup>4</sup>
Np-239	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>2</sup>	10 <sup>11</sup>	10 <sup>8</sup>
Np-240	10	10 <sup>6</sup>	10	10 <sup>13</sup>	10 <sup>7</sup>
Plutonium					
Pu-234	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>2</sup>	10 <sup>10</sup>	10 <sup>8</sup>
Pu-235	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>2</sup>	10 <sup>14</sup>	10 <sup>8</sup>
Pu-236	1	10 <sup>4</sup>	10	10 <sup>7</sup>	10 <sup>5</sup>
Pu-237	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>11</sup>	10 <sup>8</sup>
Pu-238	0.1	10 <sup>4</sup>	1	10 <sup>6</sup>	10 <sup>5</sup>
Pu-239	0.1	10 <sup>4</sup>	1	10 <sup>6</sup>	10 <sup>5</sup>
Pu-240	0.1	10 <sup>3</sup>	1	10 <sup>6</sup>	10 <sup>4</sup>
Pu-241	10	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>8</sup>	10 <sup>6</sup>
Pu-242	0.1	10 <sup>4</sup>	1	10 <sup>6</sup>	10 <sup>5</sup>
Pu-243	10 <sup>3</sup>	10 <sup>7</sup>	10 <sup>3</sup>	10 <sup>13</sup>	10 <sup>8</sup>
Pu-244+	0.1	10 <sup>4</sup>	1	10 <sup>6</sup>	10 <sup>5</sup>
Americium					
Am-241	0.1	10 <sup>4</sup>	1	10 <sup>6</sup>	10 <sup>5</sup>
Am-242	10 <sup>3</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>10</sup>	10 <sup>7</sup>
Am-242m+	0.1	10 <sup>4</sup>	1	10 <sup>6</sup>	10 <sup>5</sup>
Am-243+	0.1	10 <sup>3</sup>	1	10 <sup>6</sup>	10 <sup>4</sup>
Curium					
Cm-242	10	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>7</sup>	10 <sup>6</sup>
Cm-243	1	10 <sup>4</sup>	1	10 <sup>7</sup>	10 <sup>5</sup>
Cm-244	1	10 <sup>4</sup>	10	10 <sup>7</sup>	10 <sup>5</sup>
Cm-245	0.1	10 <sup>3</sup>	1	10 <sup>6</sup>	10 <sup>4</sup>
Cm-246	0.1	10 <sup>3</sup>	1	10 <sup>6</sup>	10 <sup>4</sup>
Cm-247+	0.1	10 <sup>4</sup>	1	10 <sup>6</sup>	10 <sup>5</sup>
Cm-248	0.1	10 <sup>3</sup>	1	10 <sup>6</sup>	10 <sup>4</sup>
Berkelium					
Bk-249	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>9</sup>	10 <sup>7</sup>
Californium					
Cf-246	10 <sup>3</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>9</sup>	10 <sup>7</sup>

<sup>1</sup> Potassium salts in quantities less than 1,000kg are exempt.

**Status:** Point in time view as at 01/01/2018.

**Changes to legislation:** There are currently no known outstanding effects for the The Ionising Radiations Regulations 2017. (See end of Document for details)

Cf-248	1	10 <sup>4</sup>	10	10 <sup>7</sup>	10 <sup>5</sup>
Cf-249	0.1	10 <sup>3</sup>	1	10 <sup>6</sup>	10 <sup>4</sup>
Cf-250	1	10 <sup>4</sup>	10	10 <sup>6</sup>	10 <sup>5</sup>
Cf-251	0.1	10 <sup>3</sup>	1	10 <sup>6</sup>	10 <sup>4</sup>
Cf-252	1	10 <sup>4</sup>	10	10 <sup>7</sup>	10 <sup>5</sup>
Cf-253	10 <sup>2</sup>	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>8</sup>	10 <sup>6</sup>
Cf-254	1	10 <sup>3</sup>	1	10 <sup>7</sup>	10 <sup>4</sup>
Einsteinium					
Es-253	10 <sup>2</sup>	10 <sup>5</sup>	10 <sup>2</sup>	10 <sup>8</sup>	10 <sup>6</sup>
Es-254+	0.1	10 <sup>4</sup>	10	10 <sup>7</sup>	10 <sup>5</sup>
Es-254m+	10	10 <sup>6</sup>	10 <sup>2</sup>	10 <sup>9</sup>	10 <sup>7</sup>
Fermium					
Fm-254	10 <sup>4</sup>	10 <sup>7</sup>	10 <sup>4</sup>	10 <sup>10</sup>	10 <sup>8</sup>
Fm-255	10 <sup>2</sup>	10 <sup>6</sup>	10 <sup>3</sup>	10 <sup>9</sup>	10 <sup>7</sup>
Other radionuclides not listed above (see Note 1)					
	0.01	10 <sup>3</sup>	0.1	10 <sup>5</sup>	10 <sup>4</sup>

**Note 1**

In the case of radionuclides not specified elsewhere in this Part, the quantities specified in this entry are to be used unless the Executive has approved some other quantity for that radionuclide.

**Note 2**

Nuclides carrying the suffix “+” in the above table represent parent nuclides and their progeny as listed in the table below. The dose contributions for those progeny are taken into account in the dose calculation (thus requiring only the exemption level of the parent radionuclide to be considered).

<sup>1</sup> Potassium salts in quantities less than 1,000kg are exempt.

**List of parent nuclides and their progeny as referred to in Note 2 above**

<i>Parent radionuclide</i>	<i>Progeny</i>
Fe-52	Mn-52m
Zn-69m	Zn-69
Ge-68	Ga-68
Sr-90	Y-90
Sr-91	Y-91m
Zr-93	Nb-93m
Zr-95	Nb-95
Zr-97	Nb-97m, Nb-97
Nb-97	Nb-97m

**Status:** Point in time view as at 01/01/2018.

**Changes to legislation:** There are currently no known outstanding effects for the  
The Ionising Radiations Regulations 2017. (See end of Document for details)

Mo-99	Tc-99m
Mo-101	Tc-101
Ru-103	Rh-103m
Ru-105	Rh-105m
Ru-106	Rh-106
Pd-103	Rh-103m
Pd-109	Ag-109m
Ag-108m	Ag-108
Ag-110m	Ag-110
Cd-109	Ag-109m
Cd-115	In-115m
Cd-115m	In-115m
In-114m	In-114
Sn-113	In-113m
Sb-125	Te-125m
Te-127m	Te-127
Te-129m	Te-129
Te-131m	Te-131
Te-132	I-132
Cs-137	Ba-137m
Ba-140	La-140
Ce-144	Pr-144, Pr-144m
Pb-210	Bi-210, Po-210
Pb-212	Bi-212, Tl-208, Po-212
Bi-212	Tl-208, Po-212
Rn-220	Po-216
Rn-222	Po-218, Pb-214, Bi-214, Po-214
Ra-223	Rn-219, Po-215, Pb-211, Bi-211, Tl-207
Ra-224	Rn-220, Po-216, Pb-212, Bi-212, Tl-208, Po-212
Ra-226	Rn-222, Po-218, Pb-214, Bi-214, Po-214, Pb-210, Bi-210, Po-210
Ra-228	Ac-228
Th-226	Ra-222, Rn-218, Po-214
Th-228	Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Tl-208, Po-212

**Status:** Point in time view as at 01/01/2018.  
**Changes to legislation:** There are currently no known outstanding effects for the  
 The Ionising Radiations Regulations 2017. (See end of Document for details)

Th-229	Ra-225, Ac-225, Fr-221, At-217, Bi-213, Po-213, Pb-209
Th-234	Pa-234m
U-230	Th-226, Ra-222, Rn-218, Po-214
U-232	Th-228, Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Tl-208, Po-212
U-235	Th-231
U-238	Th-234, Pa-234m
U-240	Np-240m, Np-240
Np-237	Pa-233
Pu-244	U-240, Np-240m, Np-240
Am-242m	Am-242, Np-238
Am-243	Np-239
Cm-247	Pu-243
Es-254	Bk-250
Es-254m	Fm-254

Regulations 2(4), 6(2) and Schedule 1

## PART 2

### Table of naturally occurring radionuclides (which are not processed for their radioactive, fissile or fertile properties)

**Values for exemption from notification and registration for naturally occurring radionuclides in solid materials (which are not processed for their radioactive, fissile or fertile properties), which apply whether or not the radionuclide is in secular equilibrium with its progeny**

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
<i>Radionuclide name, symbol, isotope</i>	<i>Concentration for: Notification amount of radioactive material); Registration (amounts of radioactive material that exceed 1,000kg) Regulation 5(1) and Schedule 1, paragraph 1(a); regulation 6(2)(f)</i>	<i>Quantity for: Notification (any of) Regulation 5(1) and Schedule 1, paragraph 1(b)</i>	<i>Concentration for Registration (amounts of radioactive material that do not exceed 1,000kg) Regulation 6(2)(e)</i>

<sup>1</sup> Potassium salts in quantities less than 1,000kg are exempt.



	<b>(Bq/g)</b>	<b>(Bq)</b>	<b>(Bq/g)</b>
K-40 <sup>1</sup>	10	10 <sup>6</sup>	10 <sup>2</sup>
Rb-87	1	10 <sup>7</sup>	10 <sup>4</sup>
Pb-210+	1	10 <sup>4</sup>	10
Po-210	1	10 <sup>4</sup>	10
Ra-226+	1	10 <sup>4</sup>	10
Ra-228+	1	10 <sup>5</sup>	10
Th-228+	1	10 <sup>4</sup>	1
Th-232 sec	1	10 <sup>3</sup>	1
U-238 sec	1	10 <sup>3</sup>	1

**Note**

Nuclides carrying the suffix “+” in the above table represent parent nuclides and their progeny as listed in the table below. The dose contributions of those progeny are taken into account in the dose calculation (thus requiring only the exemption level of the parent radionuclide to be considered).

<sup>1</sup> Potassium salts in quantities less than 1,000kg are exempt.

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**List of parent nuclides and their progeny as referred to in the Note above**

<b>Parent radionuclide</b>	<b>Progeny</b>
Pb-210	Bi-210, Po-210
Ra-226	Rn-222, Po-218, Pb-214, Bi-214, Po-214, Pb-210, Bi-210, Po-210
Ra-228	Ac-228
Th-228	Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Tl-208, Po-212

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Regulation 2(4)

## PART 3

### Quantity and concentration ratios for more than one radionuclide

1. For the purpose of Regulation 2(4)—

- (a) the quantity ratio for more than one radionuclide is the sum of the quotients of the quantity of a radionuclide present  $Q_p$  divided by the quantity of that radionuclide specified in the appropriate entry in Parts 1, 2 or 4 of this Schedule  $Q_{lim}$ , namely—

$$\sum \frac{Q_p}{Q_{lim}}$$

- (b) the concentration ratio for more than one radionuclide is the sum of the quotients of the concentration of a radionuclide present  $C_p$  divided by the concentration of that radionuclide specified in the appropriate entry in Parts 1 or 2 of this Schedule  $C_{lim}$ , namely—

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The Ionising Radiations Regulations 2017. (See end of Document for details)

$$\sum \frac{C_p}{C_{lim}}$$

2. In any case where the isotopic composition of a radioactive substance is not known or is only partially known, the quantity or concentration ratio for that substance is to be calculated by using the values specified in the appropriate column in Part 1 of this Schedule for “other radionuclides not listed above” for any radionuclide that has not been identified or where the quantity or concentration of a radionuclide is uncertain, unless the employer can show that the use of some other value is appropriate in the circumstances of a particular case, when the employer may use that value.  
Regulations 2(1) and 2(4)

## PART 4

### Table of quantities of radioactive material defining high-activity sealed sources

**For radionuclides not listed in the table below, the relevant quantity value is the same as the D-value defined in section 2 Table 1 of the IAEA publication: Dangerous quantities of radioactive material (D-values), (EPR-D-VALUES 2006)**

<i>Radionuclide</i>	<i>Quantity (Bq)</i>
Co-60	$3 \times 10^{10}$
Se-75	$2 \times 10^{11}$
Sr-90 (Y-90)	$1 \times 10^{12}$
Cs-137	$1 \times 10^{11}$
Pm-147	$4 \times 10^{13}$
Gd-153	$1 \times 10^{12}$
Tm-170	$2 \times 10^{13}$
Yb-169	$3 \times 10^{11}$
Ir-192	$8 \times 10^{10}$
Ra-226	$4 \times 10^{10}$
Pu-238	$6 \times 10^{10}$
Pu-239/Be-9 <sup>1</sup>	$6 \times 10^{10}$
Am-241	$6 \times 10^{10}$
Am-241/Be-9 <sup>1</sup>	$6 \times 10^{10}$
Cm-244	$5 \times 10^{10}$
Cf-252	$2 \times 10^{10}$

<sup>1</sup> The activity given is that of the alpha-emitting radionuclide.

## SCHEDULE 8

Regulation 41

### Transitional provisions and savings

1.—(1) In this Schedule—

“the 1999 Regulations” means the Ionising Radiations Regulations 1999 <sup>M35</sup>;

“restated provision” means any provision of these Regulations so far as it corresponds (with or without modification) to a provision of the 1999 Regulations;

“superseded provision” means any provision of the 1999 Regulations as it has effect immediately before 1st January 2018 so far as it corresponds (with or without modification) to a provision of these Regulations.

(2) In this Schedule references to things done include references to things omitted to be done.

#### Marginal Citations

**M35** S.I. 1999/3232; relevant amending instruments are S.I. 2001/2626, S.I. 2001/2975, S.I.2008//960, S.I. 2010/675, S.I. 2011/1043, S.I. 2013/755, S.I. 2014/469, S.I. 2014/3248 and S.I. 2016/1154.

2.—(1) Any thing done, or having effect as if done, under or for the purposes of any superseded provision, if effective immediately before 1st January 2018, has effect, so far as is required for continuing its effect on and after that date, as if done under or for the purposes of the corresponding restated provision.

(2) Paragraph (1) does not apply in relation to an authorisation granted or notification made under the 1999 Regulations.

(3) The specific provisions in paragraphs 3 to 10 are not to be taken to affect the generality of paragraph (1).

3. Where on or before 5th February 2018 an employer commences work in respect of which a notification is required under regulation 5(2), it will be sufficient compliance with that regulation if the employer notifies the appropriate authority and provides the particulars required under regulation 5(2) on or before 5th February 2018.

4. In paragraph 3 “appropriate authority” has the same meaning as set out in regulation 5(6).

5. Where on or before 5th February 2018 a person carries out a registrable practice (within the meaning of regulation 6(1)) it will be sufficient compliance with regulation 6(3) if the person completes the registration procedure under that regulation on or before 5th February 2018.

6. A person who carries out a practice requiring consent under regulation 7 on or before 5th February 2018 is deemed to have been granted consent to carry out that practice under regulation 7(2) until 5th February 2018.

7. Where an employer has, in respect of an employee, applied the dose limits set out in paragraphs 9 to 11 of Schedule 4 to the 1999 Regulations in accordance with the requirements of regulation 11(2) of those Regulations and those dose limits have effect immediately before 1st January 2018, the appropriate authority is deemed to have approved, for the purposes of regulation 12(2) of these Regulations, the application of the dose limits, in respect of that employee, set out in paragraphs 9 to 11 of Schedule 3 to these Regulations.

8. In paragraph 7—

(a) “appropriate authority” has the same meaning as set out in regulation 12(4);

(b) the deemed approval granted by that paragraph is valid until the end of 5th February 2018.

**Status:** Point in time view as at 01/01/2018.

**Changes to legislation:** There are currently no known outstanding effects for the  
The Ionising Radiations Regulations 2017. (See end of Document for details)

9. A radiation passbook approved for the purposes of the 1999 Regulations and issued on or before 30th April 2018 in respect of a classified outside worker employed by an employer in Great Britain and which was at that date valid remains valid for such time as the worker to whom the passbook relates continues to be employed by the same employer.

10. Where a superseded provision provides a period of time within which an aggrieved person may apply for a decision to be reviewed, that period of time continues to apply on and after 1st January 2018 in relation to any decision notified to the aggrieved person before 1 January 2018.

## SCHEDULE 9

Regulation 42

### Modifications

#### The Employment Act 1989

1. In Schedule 1 to the Employment Act 1989 <sup>M36</sup>, omit “Paragraphs 5 and 11 of Schedule 4 to the Ionising Radiations Regulations 1999 [SI 1999/3232]”.

#### Marginal Citations

**M36** 1989 c. 38, amended by S.I. 1999/3232; there is other amending legislation but none is relevant.

#### The Employment Rights Act 1996

2. In section 64(3) of the Employment Rights Act 1996 <sup>M37</sup>, for “Regulation 24 of the Ionising Radiations Regulations 1999 [SI 1999/3232]” substitute “ Regulation 25 of the Ionising Radiations Regulation 2017 [SI 2017/1075] ”.

#### Marginal Citations

**M37** 1996 c. 18, amended by S.I.1999/3232; there is other amending legislation but none is relevant.

#### The Personal Protective Equipment at Work Regulations 1992

3. In regulation 3(3)(b) of the Personal Protective Equipment at Work Regulations 1992 <sup>M38</sup>, for “the Ionising Radiations Regulations 1999 [SI 1999/3232]” substitute “ the Ionising Radiations Regulations 2017 [SI 2017/1075] ”.

#### Marginal Citations

**M38** S.I. 1992/2966, amended by S.I.1999/3232; there are other amending instruments but none is relevant.

#### The Health and Safety (Enforcing Authority) Regulations 1998

4.—(1) The Health and Safety (Enforcing Authority) Regulations 1998 <sup>M39</sup> are amended as follows.

(2) In regulation 2(1), in the definition of “ionising radiation”, for “the Ionising Radiations Regulations 1999 [SI 1999/3232]” substitute “ the Ionising Radiations Regulations 2017 [SI 2017/1075] ”.

- (3) In regulation 4A (the Office for Nuclear Regulation)—
- (a) in paragraph (2), for sub-paragraph (a) substitute—
- “(a) the provisions of the Ionising Radiations Regulations 2017 in so far as they apply—
- (i) in relation to the civil transport of radioactive material by road, railway or inland waterway; and
- (ii) to premises which are or are on a nuclear warship site;
- (aa) the provisions of the Radiation (Emergency Preparedness and Public Information) Regulations 2001 in so far as they apply to premises which are or are on a nuclear warship site;”
- (b) for paragraph (3) substitute—
- “(3) For the purposes of—
- (a) paragraph (2)(a)—
- (i) “civil transport” means transport otherwise than for the purposes of the department of the Secretary of State with responsibility for defence;
- (ii) “radioactive material” has the same meaning as given in regulation 2(1) of the Ionising Radiations Regulations 2017 [S.I. 2017/1075];
- (iii) the transport of material begins with any preparatory process (such as packaging) and continues until the material has been unloaded at its destination;
- (b) paragraphs (2)(a) and (aa) “premises” includes a nuclear powered warship during any period it is berthed or anchored at a nuclear warship site.”
- (4) In Schedule 2—
- (a) in paragraph 4(d), for “Schedule 1 of the Ionising Radiations Regulations 1999 [SI 1999/3232]” substitute “ Schedule 1 to the Ionising Radiations Regulations 2017 [SI 2017/1075] ”;
- (b) in paragraph 5, for “the Ionising Radiations Regulations 1999 [SI 1999/3232]” substitute “ the Ionising Radiations Regulations 2017 [SI 2017/1075] ”.

#### **Marginal Citations**

**M39** [S.I. 1998/494](#); relevant amending instruments are [S.I.1999/3232](#) and [S.I. 2014/469](#).

### **The Radiation (Emergency Preparedness and Public Information) Regulations 2001**

**5.—(1)** The Radiation (Emergency Preparedness and Public Information) Regulations 2001 <sup>M40</sup> are amended as follows.

- (2) In regulation 2(1)—
- (a) for the definition of “the 1999 Regulations” substitute—
- ““the 2017 Regulations” means the Ionising Radiations Regulations 2017;”;
- (b) in the definition of “approved dosimetry service”, for “the 1999 Regulations” substitute “ the 2017 Regulations ”;
- (c) in the definition of “dose assessment”, for “regulation 21 of the 1999 Regulations” substitute “ regulation 22 of the 2017 Regulations ”;

*Status: Point in time view as at 01/01/2018.*

*Changes to legislation: There are currently no known outstanding effects for the The Ionising Radiations Regulations 2017. (See end of Document for details)*

- (d) in the definition of “dose record”, for “regulation 21 of the 1999 Regulations” substitute “ regulation 22 of the 2017 Regulations ”;
  - (e) in the definition of “emergency exposure”, for “Schedule 4 to the 1999 Regulations” substitute “ Schedule 3 to the 2017 Regulations ”;
  - (f) in the definition of “medical surveillance”, for “regulation 24 of the 1999 Regulations” substitute “ regulation 25 of the 2017 Regulations ”.
- (3) In regulation 4(3), for “regulation 7 (Prior risk assessment etc) of the 1999 Regulations” substitute “ regulation 8 (Radiation risk assessments) of the 2017 Regulations ”.
- (4) In regulations 7(7)(b) and 8(8)(b), for “regulation 21 of the 1999 Regulations” substitute “ regulation 22 of the 2017 Regulations ” in each case.
- (5) In regulation 15, for “regulation 11 of the 1999 Regulations” substitute “ regulation 12 of the 2017 Regulations ”.
- (6) In Schedule 11 omit paragraphs 2 to 9.

**Marginal Citations**

**M40** [S.I. 2001/2975](#), to which there are amendments not relevant to these Regulations.

**The High-activity Sealed Radioactive Sources and Orphan Sources Regulations 2005**

6. In the High-activity Sealed Radioactive Sources and Orphan Sources Regulations 2005 <sup>M41</sup>, omit regulation 19.

**Marginal Citations**

**M41** [S.I. 2005/2686](#); revoked in relation to England and Wales by [S.I. 2010/675](#).

**The Health and Safety (Enforcing Authority for Railways and Other Guided Transport Systems) Regulations 2006**

7.—(1) The Health and Safety (Enforcing Authority for Railways and Other Guided Transport Systems) Regulations 2006 <sup>M42</sup> are amended as follows.

- (2) In regulation 3 (enforcing authority)—
  - (a) after paragraph (4) insert—
    - “(4A) The Office of Rail and Road has no responsibility for the enforcement of the Ionising Radiations Regulations 2017.”
  - (b) in paragraph (5)—
    - (i) for “regulation 93(4)” substitute “ regulation 32(4) ”;
    - (ii) for “2007 (defence and enforcement)” substitute “ 2009 (enforcement) ”.

**Marginal Citations**

**M42** [S.I. 2006/557](#); relevant amending instruments are [S.I. 2007/1573](#), [S.I. 2014/469](#) and [S.I. 2015/1682](#).

### **The Legislative Reform (Health and Safety Executive) Order 2008**

8. In Schedule 3 to the Legislative Reform (Health and Safety Executive) Order 2008 <sup>M43</sup> omit the entry relating to the Ionising Radiations Regulations 1999.

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**Marginal Citations**

**M43** [S.I. 2008/960](#), to which there are amendments not relevant to these Regulations.

### **The REACH Enforcement Regulations 2008**

9. In Part 3 of Schedule 3 to the REACH Enforcement Regulations 2008 <sup>M44</sup>—
- (a) in paragraph 1(g)(i), for “the Ionising Radiations Regulations 1999” substitute “ the Ionising Radiations Regulations 2017 ”;
  - (b) in paragraph 3, for “the Ionising Radiations Regulations” substitute “ the Ionising Radiations Regulations 2017 ”.

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**Marginal Citations**

**M44** [S.I. 2008/2852](#), to which there are amendments not relevant to these Regulations.

### **The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009**

10.—(1) Schedule 2 to the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 <sup>M45</sup> is amended as follows.

- (2) In paragraph 3(1)—
- (a) for “regulation 20 of the Ionising Radiations Regulations 1999 (“the 1999 Regulations”)” substitute “ regulation 21 of the Ionising Radiations Regulations 2017 (“the 2017 Regulations”) ”;
  - (b) for “regulations 21 to 26 of the 1999 Regulations” substitute “ regulations 22 to 27 of the 2017 Regulations ”.
- (3) In paragraph 3(2), for “paragraph 1, 2, 6, 7 or 8 of Schedule 4 (Dose Limits) to the 1999 Regulations” substitute “ paragraphs 1, 2, 5, 6 or 7 of Schedule 3 (Dose limits) to the 2017 Regulations ”.
- (4) In paragraph 3(3), for “Schedule 4 to the 1999 Regulations” substitute “ Schedule 3 to the 2017 Regulations ”.
- (5) In paragraph 4(2)(c), for “Schedule 4 to the Ionising Radiations Regulations 1999” substitute “ Schedule 3 to the Ionising Radiations Regulations 2017 ”.

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**Marginal Citations**

**M45** [S.I. 2009/1348](#), to which there are amendments not relevant to these Regulations.

### **The Environmental Permitting (England and Wales) Regulations 2010**

11. In Part 2 of Schedule 26 to the Environmental Permitting (England and Wales) Regulations 2010 <sup>M46</sup>, omit paragraph 15 (Ionising Radiations Regulations 1999).

*Status: Point in time view as at 01/01/2018.*

*Changes to legislation: There are currently no known outstanding effects for the Ionising Radiations Regulations 2017. (See end of Document for details)*

**Marginal Citations**

**M46** [S.I. 2010/675](#), to which there are amendments not relevant to these Regulations.

**The Natural Resources Body for Wales (Functions) Order 2013**

12. In Schedule 4 to the Natural Resources Body for Wales (Functions) Order 2013 <sup>M47</sup>, omit paragraph 113 (Ionising Radiations Regulations 1999).

**Marginal Citations**

**M47** [S.I. 2013/755](#), to which there are amendments not relevant to these Regulations.

**The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013**

13.—(1) The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 <sup>M48</sup> are amended as follows.

(2) In regulation 14(6)(e), for “the Ionising Radiations Regulations 1999” substitute “the Ionising Radiations Regulations 2017”.

(3) In Schedule 4, Table 1, omit the entry relating to the Ionising Radiations Regulations 1999.

**Marginal Citations**

**M48** [S.I. 2013/1471](#), to which there are amendments not relevant to these Regulations.

**The Construction (Design and Management) Regulations 2015**

14. In paragraph 3 of Schedule 3 to the Construction (Design and Management) Regulations 2015 <sup>M49</sup>, for “regulation 16 of the Ionising Radiations Regulations 1999” substitute “regulation 17 of the Ionising Radiations Regulations 2017”.

**Marginal Citations**

**M49** [S.I. 2015/51](#), to which there are amendments not relevant to these Regulations.

**The Infrastructure Planning (Interested Parties and Miscellaneous Prescribed Provisions) Regulations 2015**

15.—(1) The Infrastructure Planning (Interested Parties and Miscellaneous Prescribed Provisions) Regulations 2015 <sup>M50</sup> are amended as follows.

(2) In Part 2 of Schedule 2—

- (a) in column 1, for “Ionising Radiations Regulations 1999” substitute “Ionising Radiations Regulations 2017”;
- (b) in column 2, for the corresponding entry, for “Authorisation under regulation 5 (authorisation of specified practices)” substitute “Registration under regulation 6 (registration of certain practices) in relation to the use of electrical equipment intended to produce x-rays for the purpose of research or the exposure of persons for medical



treatment, and consent under regulation 7 (consent to carry out specified practices) in relation to the practices specified in regulation 7(1)(d), (e) and (f) ”.

#### **Marginal Citations**

**M50** S.I. 2015/462, to which there are amendments not relevant to these Regulations.

### **The Health and Safety and Nuclear (Fees) Regulations 2016**

**16.**—(1) The Health and Safety and Nuclear (Fees) Regulations 2016<sup>M51</sup> are amended as follows.

(2) In regulation 2(1), for the definition of “the 1999 Regulations” substitute—

““the 2017 Regulations” means the Ionising Radiations Regulations 2017 [SI 2017/1075];”

(3) In the heading of regulation 8, for “the Ionising Radiation Regulations 1999” substitute “ the Ionising Radiations Regulations 2017 ”.

(4) In regulation 8—

(a) in paragraph (2)—

(i) for “1(c)(i) or 1(d)(i)” substitute “ 1(d)(i) or 1(e)(i) ”;

(ii) for “1999” substitute “ 2017 ”;

(b) after paragraph (2) insert—

“(2A) A fee is payable to the appropriate authority (within the relevant meaning given in the 2017 Regulations) on each application for registration or for a consent to carry out specified practices for the purposes of the 2017 Regulations.”

(c) in paragraph (3), for “paragraph (1) or (2)” substitute “ paragraph (1), (2) or (2A) ”;

(d) in paragraph (7), for “this regulation” substitute “ paragraph (1), (2) or (4) ”;

(e) in paragraph (9), for “regulation 21(3)(e) of the 1999 Regulations” substitute “ regulation 22(3)(e) of the 2017 Regulations ”.

(5) In Schedule 4, in relation to entry (a)—

(a) for “The 1999 Regulations” substitute “ The 2017 Regulations ”;

(b) for “SI 1999/3232” substitute “ SI 2017/1075 ”.

(6) In the heading of Schedule 6, for “1999” substitute “ 2017 ”.

(7) In Schedule 6, in column 1 of Table 1—

(a) for “regulation 35 of the 1999 Regulations”, in both places in which it occurs, substitute “ regulation 36 of the 2017 Regulations ”;

(b) in the entry for “Original type approval of apparatus”—

(i) for “paragraph 1(c)(i) or 1(d)(i) of Schedule 1 to the 1999 Regulations” substitute “ paragraph 1(d)(i) or 1(e)(i) of Schedule 1 to the 2017 Regulations ”;

(ii) for “regulation 6” substitute “ regulation 5 ”;

(c) in the entry for “Amendment of an original approval of dosimetry services”, in addition to the amendment made by sub-paragraph (a) above, for “paragraph 1(c)(i) or 1(d)(i)” substitute “ paragraph 1(d)(i) or 1(e)(i) ”;

(d) after the entry referred in sub-paragraph (c) above, insert—

“Application for registration or for consent to carry out a specified practice pursuant to regulations 6 and 7 of the 2017 Regulations”.

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**Changes to legislation:** There are currently no known outstanding effects for the The Ionising Radiations Regulations 2017. (See end of Document for details)

(8) In Schedule 6, in column 2 of Table 1, in relation to the entry inserted by paragraph (7)(d), insert “ £25 ”.

(9) In Schedule 6, in column 1 of Table 2, for “regulation 35 of the 1999 Regulations”, in both places in which it occurs, substitute “ regulation 36 of the 2017 Regulations ”.

(10) In Schedule 6, in column 3 of Table 3, for “regulation 21(3)(e) of the 1999 Regulations” substitute “ regulation 22(3)(e) of the 2017 Regulations ”.

#### Marginal Citations

**M51** [S.I. 2016/253](#), to which there are amendments not relevant to these Regulations.

### The Environmental Permitting (England and Wales) Regulations 2016

17. In Part 5 of Schedule 23 to the Environmental Permitting (England and Wales) Regulations 2016 <sup>M52</sup>, omit paragraph 7.

#### Marginal Citations

**M52** [S.I. 2016/1154](#).

## EXPLANATORY NOTE

*(This note is not part of the Regulations)*

These regulations revoke and supersede the Ionising Radiations Regulations 1999.

The Regulations impose duties on employers to protect employees and other persons against ionising radiation arising from work with radioactive substances and other sources of ionising radiation. The regulations also impose certain duties on employees.

The Regulations implement in part as respects Great Britain provisions of Council Directive 2013/59/Euratom (OJ No L13, 17.1.2014, p 1) laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation, and repealing Directives 89/618/Euratom, 90/641/Euratom, 96/29/Euratom, 97/43/Euratom and 2003/122/Euratom.

The Regulations are divided into seven Parts.

### Part 1 (Preliminary—Regulations 1–4)

The Regulations define the terms used in and the scope of application of the Regulations. For the purposes of the Regulations, an employer includes a self-employed person and an employee includes a self-employed person and a trainee.

Generally, the Regulations apply to any practice (as defined, and which encompasses various types of work), and to any other work carried out in an atmosphere of radon above a particular concentration. In the Regulations, work with ionising radiation means work to which the Regulations apply.

## **Part 2 (General principles and procedures—Regulations 5–13)**

Regulation 5 requires certain work with ionising radiation to be notified to the appropriate authority (either the Health and Safety Executive (“the Executive”) or, where the work relates to particular nuclear-related sites, the Office for Nuclear Regulation (“the ONR”). The work which requires notification is a residual category of work; amongst other exclusions, work which arises from practices which require registration under regulation 6 or require a consent under regulation 7 do not require notification.

Regulation 6 requires all practices to be registered with the appropriate authority other than those excluded from registration by regulation 6(2). Amongst other exclusions, practices consisting of work which is excluded from notification because the work falls within Schedule 1, are excluded from registration. Practices which require a consent under regulation 7, and practices which involve moderate amounts of radioactive material (not exceeding 1,000kg) where the activity concentration value of that material is less than the values in column 4 of Part 1 of Schedule 7, are also excluded from registration.

Regulation 7 requires an employer to obtain a consent from the appropriate authority to carry out certain practices.

Regulations 8 to 13—

- (a) require employers to make a prior assessment of the risks arising from their work with ionising radiation, to make an assessment of the hazards likely to arise from that work and to prevent and limit the consequences of identifiable radiation accidents;
- (b) require employers to take all reasonable steps to restrict as far as is reasonably practicable the extent to which employees and other persons are exposed to ionising radiation;
- (c) require respiratory protective equipment used in work with ionising radiation to conform with agreed standards and require all personal protective equipment and other controls to be regularly examined and properly maintained;
- (d) impose limits (specified in Schedule 3) on the doses of ionising radiation which employees and other persons may receive;
- (e) require in certain circumstances the preparation of contingency plans for radiation accidents which are reasonably foreseeable.

## **Part 3 (Arrangements for the management of radiation protection—Regulations 14–16)**

The Regulations require that employers consult radiation protection advisers in respect of matters specified in Schedule 4 and that employers ensure that adequate information, instruction and training is given to employees and other persons. Employers are required to co-operate by exchanging information to enable compliance by others with requirements to limit the exposure of employees to ionising radiation.

## **Part 4 (Designated areas—Regulations 17–20)**

The Regulations—

- (a) provide that areas in which persons need to follow special procedures to restrict exposure or in which persons are likely to receive more than specified doses of ionising radiation be designated as controlled or supervised areas;
- (b) restrict entry into controlled areas to specified persons and circumstances;
- (c) require radiation employers to set out appropriate local rules for controlled or supervised areas and to appoint radiation protection supervisors for the purpose of securing compliance with the Regulations;
- (d) impose specified duties upon employers in relation to outside workers;

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- (e) require radiation levels to be monitored in controlled or supervised areas and provide for the maintenance and testing of monitoring equipment.

#### **Part 5 (Classification and monitoring of persons—Regulations 21–27)**

The Regulations require that employees who are likely to receive more than specified doses of ionising radiation be designated as classified persons, that doses received by classified persons be assessed by one or more dosimetry services approved by the Executive and that records of such doses are made and kept for each such person.

The Regulations also provide for—

- (a) certain employees to be subject to medical surveillance;
- (b) any cases in which an employee has received an overexposure to be investigated and notified to the appropriate authority;
- (c) investigations to be made where employees are exposed above specified levels;
- (d) modified dose limits for employees who have received an overexposure.

#### **Part 6 (Arrangements for the control of radioactive substances, articles and equipment—Regulations 28–34)**

The Regulations—

- (a) require that where a radioactive substance is to be used as a source of ionising radiation, it should, whenever reasonably practicable, be in the form of a sealed source and that any articles embodying or containing radioactive substances are suitably designed, constructed, maintained and tested;
- (b) cover the accounting for, keeping and moving of radioactive substances and require that incidents in which more than specified quantities of radioactive substances escape or are lost or stolen be notified to the appropriate authority;
- (c) impose duties on manufacturers etc. and installers of articles for use in work with ionising radiation to ensure that such articles are designed, constructed and installed so as to restrict, so far as is reasonably practicable, exposure to ionising radiation;
- (d) impose similar duties upon employers in relation to equipment used for medical exposures together with additional duties in relation to the testing and safe operation of such equipment;
- (e) require employers to investigate any defect in medical equipment which may have resulted in a person receiving a dose of ionising radiation much greater than was intended and to notify the appropriate authority of such incidents;
- (f) prohibit interference with sources of ionising radiation.

#### **Part 7 (Duties of employees and miscellaneous—Regulations 35–43)**

The Regulations impose duties upon employees engaged in carrying out work with ionising radiation. The Regulations also—

- (a) provide for the approval of dosimetry services by the Executive;
- (b) provide for a defence on contravention of certain regulations;
- (c) provide for exemptions to be granted by the appropriate authority;
- (d) extend the provision of the Regulations outside Great Britain;
- (e) contain transitional provisions; and
- (f) introduce modifications relating to the Ministry of Defence and visiting forces.

The Regulations contain transitional provisions and savings.

The Regulations make consequential and other modifications to the enactments specified in Schedule 9. In particular—

- (a) the Health and Safety (Enforcing Authority) Regulations 1998 and the Health and Safety (Enforcing Authority for Railways and Other Guided Transport Systems) Regulations 2006 are modified to transfer enforcement responsibility for these Regulations in relation to road, rail and inland waterway to the ONR; and
- (b) the Health and Safety and Nuclear (Fees) Regulations 2016 are modified to include an application fee of £25 for a registration under regulation 6 or a consent to carry out specified practices under regulation 7.

A full impact assessment of the effect that these Regulations would have on the costs of business and the voluntary sector is published with the Explanatory Memorandum, which is available alongside the instrument on [www.legislation.gov.uk](http://www.legislation.gov.uk).

The transposition note in relation to the implementation of the Basis Safety Standards Directive is also published with the Explanatory Memorandum and available on that website. Copies of these documents are available in the libraries of both Houses of Parliament.

**Status:**

Point in time view as at 01/01/2018.

**Changes to legislation:**

There are currently no known outstanding effects for the The Ionising Radiations Regulations 2017.