



Queensland

Radiation Safety Act 1999

Radiation Safety Regulation 1999

Reprinted as in force on 30 July 2010

Reprint No. 5D

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The reprint includes a reference to the law by which each amendment was made—see list of legislation and list of annotations in endnotes. Also see list of legislation for any uncommenced amendments.

This page is specific to this reprint. See previous reprints for information about earlier changes made under the Reprints Act 1992. A table of reprints is included in the endnotes.

Also see endnotes for information about—

- **when provisions commenced**
- **editorial changes made in earlier reprints.**

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Queensland

Radiation Safety Regulation 1999

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Radiation Safety Regulation 1999

[as amended by all amendments that commenced on or before 30 July 2010]

Part 1 Preliminary

1 Short title

This regulation may be cited as the *Radiation Safety Regulation 1999*.

2 Commencement

This regulation commences on 1 January 2000.

3 Dictionary

The dictionary in schedule 6 defines particular words used in this regulation.

Part 2 Radiation sources and sealed source apparatus

Division 1 Radioactive substances

4 Concentration or activity of a radionuclide—Act, sch 2, definition *radioactive substance*

For paragraph (a) of the definition of *radioactive substance* in schedule 2 of the Act, radioactive material containing a

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radionuclide stated in schedule 1, column 1 is a radioactive substance if—

- (a) the concentration of the radionuclide is equal to, or more than, the concentration stated in schedule 1, column 2 shown opposite the radionuclide; and
- (b) the activity of the radionuclide is equal to, or more than, the activity stated in schedule 1, column 3 shown opposite the radionuclide.

5 Concentration of a radionuclide in a mineral substance—Act, sch 2, definition *radioactive substance*

(1) This section applies to the following substances (the *mineral substances*)—

- (a) a mineral situated outside the boundaries of land the subject of a mining lease, mineral development licence or exploration permit within the meaning of the *Mineral Resources Act 1989*;
- (b) a substance into which a mineral has been changed as a result of the processing of the mineral.

Examples of the processing of a mineral—

the refining, smelting or calcining of a mineral

(2) Despite section 4, for paragraph (a) of the definition of *radioactive substance* in schedule 2 of the Act, a mineral substance containing a radionuclide stated in schedule 1, column 1 is a radioactive substance if the concentration of the radionuclide is equal to, or more than, the amount worked out by multiplying the concentration stated in schedule 1, column 2 shown opposite the radionuclide by 10.

Division 2 Radiation apparatus

6 **Apparatus emitting ionising radiation—Act, sch 2, definition *radiation apparatus***

- (1) The amount for paragraphs (a) and (b) of the definition of *radiation apparatus* in schedule 2 of the Act is 1 microgray an hour, measured at a distance of 10cm from any accessible surface of the apparatus.
- (2) In this section—
accessible surface, of an apparatus, means a surface of the apparatus that may easily be touched.

7 **Apparatus emitting non-ionising radiation—Act, sch 2, definition *radiation apparatus***

For paragraphs (c) and (d) of the definition of *radiation apparatus* in schedule 2 of the Act—

- (a) a laser that could reasonably be used to carry out a diagnostic, therapeutic or cosmetic procedure involving the irradiation of a person is an apparatus; and
- (b) the amount for the laser is the accessible emission limit, for a class 3B laser for the relevant period, stated in, and measured in accordance with, the laser standard.

Division 2A Security enhanced source

7A **What is a security enhanced source**

- (1) This section prescribes what is a security enhanced source for the Act, schedule 2, definition *security enhanced source*.
- (2) A sealed radioactive substance or aggregation of sealed radioactive substances is a security enhanced source if it is classified as security category 1, 2 or 3 under schedule 1A, part 1 according to its activity ratio.

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- (3) For subsection (2), the activity ratio of a sealed radioactive substance is worked out by the following formula—

$$\text{activity ratio} = \frac{A}{RAV}$$

where—

A means the activity of the radionuclide in the sealed radioactive substance, stated in gigabecquerels.

RAV means the activity value stated in schedule 1A, part 2 for the radionuclide in the sealed radioactive substance.

- (4) For subsection (2), the activity ratio of an aggregation of 2 or more sealed radioactive substances is the sum of the activity ratios of the sealed radioactive substances in the aggregation worked out under subsection (3).

Division 3 Certificates of compliance

8 Periods within which certificates of compliance must be obtained—Act, s 18

- (1) For section 18(2) of the Act, the period is—
- (a) for an ionising radiation source, or a sealed radioactive substance incorporated in a sealed source apparatus, used to carry out a diagnostic or therapeutic procedure involving the irradiation of a person, other than an ionising radiation apparatus used to carry out intra-oral dental, or plain-film, diagnostic radiography—1 year; or
 - (b) for an ionising radiation apparatus used to carry out intra-oral dental, or plain-film, diagnostic radiography involving the irradiation of a person—3 years; or
 - (c) for an ionising radiation source, or a sealed radioactive substance incorporated in a sealed source apparatus, used to carry out a radiation practice for a research project—1 year; or

-
- (d) for an ionising radiation source, or a sealed radioactive substance incorporated in a sealed source apparatus, used in the course of a person's study or training at an educational institution—1 year; or
 - (e) for an ionising radiation source, or a sealed radioactive substance incorporated in a sealed source apparatus, used to carry out a radiation practice, other than a radiation practice stated in paragraph (a), (b), (c) or (d)—3 years; or
 - (f) for a laser apparatus used to carry out a diagnostic, therapeutic or cosmetic procedure involving the irradiation of a person—1 year.
- (2) For section 18(4) and (5) of the Act, the period is 5 years.

Part 3 Act instruments

8AA Documents relating to proof of identity—Act, s 51

- (1) This section prescribes, for section 51(1)(c)(ii) and (iii) of the Act, the documents to prove an individual's or nominated person's identity.
- (2) An application for an Act instrument must be accompanied by 2 documents listed in schedule 2A comprising—
 - (a) a certified copy of 1 document from part 1; and
 - (b) a certified copy of 1 document from part 2.
- (3) In this section—

certified copy means a copy of an original document that has been certified by a justice of the peace or a notary public as being a correct copy of the original document.

justice of the peace means a justice under the laws of a State or the Commonwealth.

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notary public means a notary public under the laws of a State, the Commonwealth or a foreign country.

8A Notification of change of circumstances—Act, s 92(2)

For section 92(2) of the Act, the changes in the holder's circumstances are the following—

- (a) for a holder of a licence, a change in any of the following—
 - (i) the licence holder's name;
 - (ii) if the licence is a use licence and the licence holder is a health practitioner or a veterinary surgeon—
 - (A) the licence holder's accreditation, enrolment or registration as a health practitioner or a veterinary surgeon; or
 - (B) a condition attaching to the accreditation, enrolment or registration;
- (b) for a holder of an accreditation certificate, a change in either of the following—
 - (i) the certificate holder's name;
 - (ii) the certificate holder's contact details;
Examples of contact details—
address, telephone number, facsimile number, email address
- (c) for the holder of a continuing approval to acquire, a change in the approval holder's name;
- (d) for the holder of a radiation safety officer certificate, a change in the certificate holder's name.

8B Prescribed sealed radioactive substance—Act, s 52

- (1) For section 52(1)(b) of the Act, an iodine-125 seed with an activity of no more than 40MBq is a prescribed sealed radioactive substance for brachytherapy.

(2) In this section—

iodine-125 seed means iodine-125 as a sealed radioactive substance.

9 Certain possession, use or transport licences—Act, s 75(3) and (4)

(1) For section 75(3) of the Act—

- (a) a possession licence to possess or a use licence to use an ionising radiation source for intra-oral dental diagnostic radiography, involving the irradiation of a person, is subject to the condition that the holder of the licence comply with the Code of Practice for Radiation Protection in Dentistry (2005) in the document entitled ‘Code of Practice and Safety Guide for Radiation Protection in Dentistry (Radiation Protection Series No. 10)’ prepared by ARPANSA; and
- (b) a possession licence to possess or a use licence to use an ionising radiation source for conducting health-related research on persons is subject to the condition that the holder of the licence comply with the document entitled ‘Code of Practice for the Exposure of Humans to Ionizing Radiation for Research Purposes (2005)’ prepared by ARPANSA; and
- (c) a possession licence to possess or a use licence to use a sealed source apparatus for density-gauging or moisture-gauging for geo-technical purposes is subject to the condition that the holder of the licence comply with the Code of Practice for Portable Density/Moisture Gauges Containing Radioactive Sources (2004) in the document entitled ‘Code of Practice and Safety Guide for Portable Density/Moisture Gauges Containing Radioactive Sources (Radiation Protection Series No. 5)’ prepared by ARPANSA; and
- (d) a possession licence to possess or a use licence to use a radioactive substance to carry out a diagnostic or therapeutic procedure involving irradiation of a person

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is subject to the condition that the holder of the licence comply with the document entitled 'Recommendations for the Discharge of Patients Undergoing Treatment with Radioactive Substances (2002)' prepared by ARPANSA; and

- (e) a possession licence to possess or a use licence to use an ionising radiation source to carry out a diagnostic or therapeutic procedure involving the irradiation of a person is subject to the condition that the holder of the licence comply with the document entitled 'Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation (2008)' prepared by ARPANSA; and
- (f) a possession licence to possess or a use licence to use an ionising radiation source for industrial gauging is subject to the condition that the holder of the licence comply with the document entitled 'Code of Practice for Safe Use of Fixed Radiation Gauges (2007)' prepared by ARPANSA; and
- (g) a possession licence to possess or a use licence to use a radiation source that is a security enhanced source is subject to the condition that the holder of the licence comply with the document entitled 'Code of Practice for the Security of Radioactive Sources (2007)' (Radiation Protection Series No. 11), prepared by ARPANSA.

Editor's note—

Copies of the documents referred to in paragraphs (a) to (g) are available on the internet at <www.arpansa.gov.au/Publications/codes/rps.cfm>. Copies of the documents referred to in paragraphs (a) to (g) may also be purchased from ARPANSA, 619 Lower Plenty Road, Yallambie, Victoria 3085.

- (2) For section 75(4) of the Act—
 - (a) a transport licence is subject to the condition that the holder of the licence comply with the transport code of practice; and
 - (b) a transport licence to transport a radiation source that is a security enhanced source is subject to the condition

that the holder of the licence comply with the document entitled 'Code of Practice for the Security of Radioactive Sources (2007)' (Radiation Protection Series No. 11), prepared by ARPANSA.

9A Relevant offences

For the Act, schedule 2, definition *relevant offence*, each of the following offences is prescribed—

- (a) an offence mentioned in the *Criminal Code Act 1995* (Cwlth), chapter 5;
- (b) an offence mentioned in the *Crimes Act 1914* (Cwlth), part 2;
- (c) an offence under a State law corresponding to an offence mentioned in the *Crimes Act 1914* (Cwlth), part 2;
- (d) an offence under the *Weapons of Mass Destruction (Prevention of Proliferation) Act 1995* (Cwlth), section 9;
- (e) an offence under the *Customs Act 1901* (Cwlth) relating to the importation or exportation of radioactive material;
- (f) an identity related offence including an offence related to—
 - (i) assuming another person's identity; or
 - (ii) counterfeiting documents related to a person's identity; or
 - (iii) falsifying documents related to a person's identity;
- (g) an offence related to the hijacking or destruction of an aircraft or sea vessel;
- (h) an offence involving weapons or explosives including an offence related to possession, supply, production, importation, exportation or unlicensed use;
- (i) an offence involving prohibited drugs including an offence related to—

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- (i) possession, if the maximum penalty prescribed is more than 2 years imprisonment; or
- (ii) possession of equipment for the manufacture of a prohibited drug; or
- (iii) supply, production, importation or exportation;
- (j) an offence involving the production, importation or exportation of firearms.

Part 4 Disposal

Division 1 Disposal of radioactive material

10 Disposal of radioactive material into the air or water, other than into the sewerage system—Act, s 26(1)(a)

- (1) For section 26(1)(a) of the Act—
 - (a) for radioactive material, containing only 1 of the radionuclides stated in schedule 2, column 1, being disposed of into the air—the maximum concentration is the concentration stated in schedule 2, column 2 shown opposite the radionuclide; or
 - (b) for radioactive material, containing only 1 of the radionuclides stated in schedule 2, column 1, being disposed of into water—the maximum concentration is the concentration stated in schedule 2, column 3 shown opposite the radionuclide; or
 - (c) for radioactive material, containing more than 1 of the radionuclides stated in schedule 2, column 1, being disposed of into the air or water—the material's disposal factor must be not more than 1.
- (2) Subsection (1) does not apply to the disposal of radioactive material into the sewerage system.

(3) In this section—

disposal factor, for radioactive material containing more than 1 of the radionuclides stated in schedule 2, column 1, means the total of the amounts worked out by applying the following formula to each of the radionuclides—

$$\frac{C}{MC}$$

where—

C, for a radionuclide, means the radionuclide's concentration, measured in Bq a cubic metre.

MC, for a radionuclide, means—

- (a) if the material is to be disposed of into the air—the concentration stated in schedule 2, column 2 shown opposite the radionuclide; or
- (b) if the material is to be disposed of into water—the concentration stated in schedule 2, column 3 shown opposite the radionuclide.

11 Disposal of radioactive material into the sewerage system—Act, s 26(1)(a)

(1) For section 26(1)(a) of the Act—

- (a) for radioactive material, containing only 1 of the radionuclides stated in schedule 2, column 1, being disposed of into the sewerage system—the maximum concentration is the concentration stated in schedule 2, column 4 shown opposite the radionuclide; or
- (b) for radioactive material, containing more than 1 of the radionuclides stated in schedule 2, column 1, being disposed of into the sewerage system—the material's disposal factor must be not more than 1.

(2) For subsection (1), the point of disposal at which the concentration of a radionuclide in radioactive material is to be decided is a point at, or before, which the sewerage pipe

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leading from premises, at which the material is being disposed of, joins the main reticulation line of the sewerage system.

(3) In this section—

disposal factor, for radioactive material containing more than 1 of the radionuclides stated in schedule 2, column 1, means the total of the amounts worked out by applying the following formula to each of the radionuclides—

$$\frac{C}{MC}$$

where—

C, for a radionuclide, means the radionuclide's concentration, measured in Bq a cubic metre.

MC, for a radionuclide, means the concentration stated in schedule 2, column 4 shown opposite the radionuclide.

12 Disposal of radioactive material, other than into the air, water or sewerage system—Act, s 26(1)(a)

(1) For section 26(1)(a) of the Act—

- (a) for radioactive material, containing only 1 of the radionuclides stated in schedule 1, column 1, being disposed of other than into the air, water or sewerage system—the maximum concentration is one-half of the concentration stated in schedule 1, column 2 shown opposite the radionuclide; or
- (b) for radioactive material, containing more than 1 of the radionuclides stated in schedule 1, column 1, being disposed of other than into the air, water or sewerage system—the material's disposal factor must be not more than 1.

(2) In this section—

disposal factor, for radioactive material containing more than 1 of the radionuclides stated in schedule 1, means the total of

the amounts worked out by applying the following formula to each of the radionuclides—

$$\frac{C}{MC}$$

where—

C, for a radionuclide, means the radionuclide's concentration, measured in Bq a gram.

MC, for a radionuclide, means one-half of the concentration stated in schedule 1, column 2 shown opposite the radionuclide.

Division 2 Requirements for disposal of certain apparatus or containers

13 Removal etc. of radiation warning signs

- (1) This section applies to a person disposing of—
 - (a) a container that has been used for the transport or storage of radioactive material; or
 - (b) an apparatus that once contained a sealed radioactive substance; or
 - (c) a radiation apparatus.
- (2) The person must, immediately before the disposal, remove or make illegible all radiation warning signs attached to the container or apparatus.

Maximum penalty—20 penalty units.

- (3) In this section—

radiation warning signs, attached to a container or apparatus, means labels adhering to, or symbols embedded in, the container or apparatus indicating that the container or apparatus poses a radiation hazard.

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Part 5 Radiation safety and protection plans

Division 1 Radiation safety and protection measures for all radiation practices

14 Methods and procedures—Act, s 28(6)

- (1) For section 28(6) of the Act, the following are radiation safety and protection measures for preventing or minimising health risks to any person arising from exposure to radiation from the use of a radiation source in the carrying out of a radiation practice—
 - (a) safe handling procedures to be followed for the source;
 - (b) procedures and methods for ensuring the safe use of the source in the carrying out of the practice;
 - (c) if the practice involves the production of images—procedures and methods for ensuring the correct use of ancillary imaging equipment used in connection with the use of the source to carry out the practice;
 - (d) quality control procedures to be undertaken for—
 - (i) the source; and
 - (ii) if the source is a sealed radioactive substance incorporated in a sealed source apparatus—the apparatus; and
 - (iii) if the practice involves the production of images—any ancillary imaging equipment used in connection with the use of the source to carry out the practice;
 - (e) remediation procedures to be followed for any accidents that could reasonably be expected to happen in relation to the carrying out of the practice.
- (2) In this section—

remediation procedures, for an accident, means procedures designed to minimise any radiation hazard arising from the accident.

15 Control of access to, or use of, radiation sources—Act, s 28(6)

For section 28(6) of the Act, a radiation safety and protection measure for preventing or minimising health risks to any person arising from exposure to radiation from the use of a radiation source in the carrying out of a radiation practice is a statement about how access to, or use of, the source is to be controlled.

16 Supply of safety devices—Act, s 28(6)

For section 28(6) of the Act, the following are radiation safety and protection measures for preventing or minimising health risks to any person arising from exposure to radiation from the use of a radiation source in the carrying out of a radiation practice—

- (a) a requirement that the possession licensee in possession of the source, under the licence, for the practice supply safety devices for use by persons while involved in carrying out the practice;
- (b) details of the devices to be supplied;
- (c) details of how, and when, the devices are to be used;
- (d) details of the intervals at which the devices are to be checked for wear and tear, and correct operation;
- (e) details of the persons who will be engaged to check the devices, described by reference to the abilities of the persons to perform the task.

17 Supply of personal protective equipment—Act, s 28(6)

For section 28(6) of the Act, the following are radiation safety and protection measures for preventing or minimising health

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risks to any person arising from exposure to radiation from the use of a radiation source in the carrying out of a radiation practice—

- (a) a requirement that the possession licensee in possession of the source, under the licence, for the practice supply personal protective equipment for wearing by persons while involved in carrying out the practice;
- (b) details of the type of the equipment to be supplied to the persons, described by reference to the nature of their involvement in the carrying out of the practice;
- (c) details of how, and when, the equipment is to be worn by the persons;
- (d) details of the intervals at which the equipment is to be checked for wear and tear, and correct operation;
- (e) details of the persons who will be engaged to check the equipment, described by reference to the abilities of the persons to perform the task.

18 Keeping records—Act, s 28(6)

For section 28(6) of the Act, a radiation safety and protection measure for preventing or minimising health risks to any person arising from exposure to radiation from the use of a radiation source in the carrying out of a radiation practice is a requirement that the use licensee allowed to use the source, under the licence, for the practice record in a register, supplied and under the control of the possession licensee who possesses the source, the following—

- (a) the names of persons who use the source to carry out the practice;
- (b) if the source is an unsealed radioactive substance—details of any disposal of radioactive material that happens in the carrying out of the practice;
- (c) details of—
 - (i) any quality control procedures undertaken for—

- (A) the source; and
 - (B) if the source is a sealed radioactive substance incorporated in a sealed source apparatus—the apparatus; and
 - (C) if the practice involves the production of images—any ancillary imaging equipment used in connection with the use of the source to carry out the practice; and
- (ii) the outcomes of the procedures.

19 Supply of personal monitoring devices—Act, s 28(6)

- (1) This section applies if, under a radiation safety and protection plan for a radiation practice, a person is required to be supplied a personal monitoring device.

Editor's note—

Section 28(3) of the Act states the circumstances in which a radiation safety and protection plan for a radiation practice must provide for the supply of a personal monitoring device to a person.

- (2) For section 28(6) of the Act, the following are measures relevant to the carrying out of the practice—
- (a) details of the persons who are required to wear the device, described by reference to the nature of their involvement in the carrying out of the practice;
 - (b) details of how, when and where the device is to be worn;
 - (c) details of where the device is to be stored when not being worn;
 - (d) details of the intervals at which the device is to be assessed;
 - (e) details of the persons who are to perform the assessment, described by reference to the abilities of the persons to perform the task.

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Division 2 Radiation safety and protection measures for certain radiation practices

20 Radiation practices involving the use of ionising radiation sources—Act, s 28(6)

- (1) This section applies if a radiation practice involves the use of an ionising radiation source.
- (2) For section 28(6) of the Act, the following are measures relevant to the carrying out of the practice—
 - (a) a requirement that the possession licensee in possession of the source, under the licence, for the practice supply personal alarm dosimeters for use by persons while involved in carrying out the practice;
 - (b) details of the persons who are required to use the dosimeters, described by reference to the nature of their involvement in the carrying out of the practice;
 - (c) details of how, and when, the dosimeters are to be used by the persons;
 - (d) details of the dosimeters, having the sensitivity, accuracy, range and energy response appropriate to the source, that will be used;
 - (e) details of the intervals, of not more than 12 months, at which the dosimeters are to be checked for sensitivity, accuracy, range and energy response;
 - (f) if a personal alarm dosimeter is repaired or suspected to have been damaged—a requirement that the dosimeter not be used unless it is first checked for sensitivity, accuracy, range and energy response;
 - (g) details of the persons who will be engaged to check the sensitivity, accuracy, range and energy response of the dosimeters, described by reference to the abilities of the persons to perform the task.

Editor's note—

The radiation safety and protection measures, for preventing or minimising health risks to persons arising from exposure to radiation from the carrying out of certain radiation practices, stated in this division are in addition to the measures stated in division 1.

(3) In this section—

personal alarm dosimeter means a device that produces a visual or audible signal when—

- (a) any radiation dose received by the device is more than a certain dose level; or
- (b) any radiation dose received by the device during a particular period is more than a certain dose level.

21 Radiation practices involving the use or storage of unsealed radioactive substances—Act, s 28(6)

- (1) This section applies to a radiation practice involving the use or storage of unsealed radioactive substances at premises.
- (2) For section 28(6) of the Act, the following are measures relevant to the carrying out of the practice—
 - (a) details stating how the premises, and persons or things at the premises, are to be monitored to detect, or minimise, contamination of the premises, persons or things;
 - (b) details about how, and the period for which, contaminated cleanable things at the premises are to be stored at the premises before removal from the premises for cleaning;
 - (c) details about how waste radioactive material, produced in carrying out the practice, is to be dealt with before its disposal;
 - (d) details about how the amount of waste radioactive material produced in carrying out the practice is to be minimised.

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- (3) For subsection (2)(a), the measures must include details of the monitoring equipment, having the sensitivity, accuracy, range and energy response appropriate to the contamination to be monitored, that will be used.
- (4) For subsection (2)(c), the measures must include the following—
 - (a) the method to be used to minimise the activity of the radionuclide in, and volume of, the material;
 - (b) if the material is to be stored—how the material is to be sorted for storage, having regard to—
 - (i) its half-life, volume, and physical and chemical properties; and
 - (ii) the concentration of the radionuclide in the material.
- (5) In this section—

cleanable thing, at premises, means a thing that, to be cleaned, needs to be removed from the premises.

22 Certain radiation practices involving the use of ionising radiation sources—Act, s 28(6)

- (1) This section applies to a radiation practice involving the use of an ionising radiation source to carry out a radiation practice, other than—
 - (a) the use of an ionising radiation apparatus for—
 - (i) a diagnostic procedure involving the irradiation of a person; or
 - (ii) chemical analysis; or
 - (b) the use of a sealed source apparatus for chemical analysis; or
 - (c) the use of a cabinet radiation apparatus or enclosed radiation apparatus for its intended use.
- (2) For section 28(6) of the Act, the following are measures relevant to the carrying out of the practice—

-
- (a) a requirement that the possession licensee in possession of the source, under the licence, for the practice supply radiation monitoring equipment for use by persons while involved in carrying out the practice;
 - (b) details of how the equipment is to be used;
 - (c) details of the equipment, having the sensitivity, accuracy, range and energy response appropriate to the radiation source, that will be used;
 - (d) details of how the licensee will ensure the sensitivity, accuracy, range and energy response of the equipment, to be used, are maintained;
 - (e) details of the intervals, of not more than 12 months, at which the equipment is to be checked for sensitivity, accuracy, range and energy response;
 - (f) if the equipment is repaired or suspected to have been damaged—a requirement that the equipment must not be used unless it is first checked for sensitivity, accuracy, range and energy response;
 - (g) details of the persons who will be engaged to check the sensitivity, accuracy, range and energy response of the equipment, described by reference to the abilities of the persons to perform the task.
- (3) In this section—

radiation monitoring equipment means equipment that measures the amount of radiation emitted from radioactive substances or ionising radiation apparatus during a particular period.

23 Radiation practices involving the carrying out of a diagnostic, therapeutic or cosmetic procedure involving the irradiation of a person—Act, s 28(6)

- (1) This section applies to a radiation practice involving the use of a radiation source to carry out a diagnostic, therapeutic or cosmetic procedure involving the irradiation of a person (the *treated person*).

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- (2) For section 28(6) of the Act, the following are measures relevant to the carrying out of the practice—
- (a) a requirement that the possession licensee in possession of the source, under the licence, for the practice supply personal protective equipment for wearing by the treated person while undergoing the procedure;
 - (b) a requirement that the use licensee who, under the licence, uses the source to carry out the procedure ensures that the treated person wears the equipment while undergoing the procedure;
 - (c) details of the equipment to be supplied;
 - (d) a requirement that the use licensee record in a register, supplied and under the control of the possession licensee, the following details about each exposure of the treated person to radiation while undergoing the procedure—
 - (i) the date of use of the source to carry out the procedure;
 - (ii) details of the procedure;
 - (iii) if the treated person was injected with a radioactive substance, or a radioactive substance was administered to or implanted in the person, as part of the procedure—details of the substance;
 - (e) if the carrying out of the procedure results in the production of radiographs or nuclear medicine images—
 - (i) a requirement that the images produced be permanently marked with relevant information; and
 - (ii) details of the way in which the marking is to be made.
- (3) In this section—
- permanent marking***, of an image, means to mark it in a way that leaves a permanent record on the image.

relevant information, for a nuclear medicine image, means the following information—

- (a) the name, or identifying mark, of the use licensee;
- (b) the name, or identifying mark, of the possession licensee;
- (c) the address, or identifying mark, of the premises at which the image was produced;
- (d) the name, gender and date of birth of the treated person;
- (e) the date the image was produced;
- (f) details of the radiopharmaceuticals administered to, or injected into, the treated person for the production of the image;
- (g) adequate information to enable the correct interpretation of the image.

relevant information, for a radiograph with a surface area of 45cm² or more, means the following information—

- (a) the name, or identifying mark, of the use licensee;
- (b) the name, or identifying mark, of the possession licensee;
- (c) the address, or identifying mark, of the premises at which the radiograph was produced;
- (d) the name, gender and date of birth of the treated person;
- (e) the date the radiograph was produced;
- (f) adequate information to enable the correct interpretation of the radiograph.

relevant information, for a radiograph with a surface area of less than 45cm², means a marking that identifies, or helps in the identification of, the treated person.

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24 Radiation practices involving the carrying out of a diagnostic or therapeutic procedure involving the irradiation of a person—Act, s 28(6)

- (1) This section applies to a radiation practice involving the use of a radioactive substance to carry out a diagnostic or therapeutic procedure involving the irradiation of a person.
- (2) For section 28(6) of the Act, a measure relevant to the carrying out of the practice is a measure that provides guidance about the duration of the procedure.

25 Radiation practices resulting in the production of the radionuclide radon-222—Act, s 28(6)

- (1) This section applies to a radiation practice that results in the production of the radionuclide radon-222.
- (2) For section 28(6) of the Act, a measure relevant to the carrying out of the practice is a requirement that the premises in which the practice is carried out are ventilated in a way that prevents the concentration of the radionuclide being more than 200Bq a cubic metre.

Division 3 Other particulars to be stated in radiation safety and protection plans

26 Radiation safety officers—Act, s 28(2)(g)

- (1) This section applies if a possession licensee, under the licence, possesses a radiation source for a radiation practice.
- (2) For section 28(2)(g) of the Act, the radiation safety and protection plan for the practice must state the maximum intervals at which a radiation safety officer appointed by the licensee for the practice is to monitor or assess the source, or premises at which the practice is being carried out, to identify whether the relevant radiation safety standard for the source or premises is being complied with.

Part 5A Security requirements for a security enhanced source

Division 1 Threat levels

26A Meaning of *threat level*

- (1) A *threat level* is an indicator of the likelihood and consequences of a perceived perpetrator acquiring a security enhanced source for a malicious purpose.
- (2) For this part, the threat level at a particular time is the threat level decided by the National Threat Assessment Centre and communicated to the commissioner of police.

Note—

The threat level is ordinarily described as any of the following—

- extreme
 - high
 - medium
 - low
 - very low
 - negligible
- (3) In this section—
National Threat Assessment Centre means the entity of that name administered within the Australian Security Intelligence Organisation.

[s 26B]

Division 2 Security measures for a security enhanced source

26B Matters to be included in a security plan—Act, s 34A

The matters stated in this division are the security measures and particulars that must be stated in a security plan.

26C Storage and use of a security enhanced source

The security plan must include details of the secure storage and use of a security enhanced source, including—

- (a) the location of the security enhanced source in the building or facility where it is—
 - (i) stored; or
 - (ii) used in the carrying out of a radiation practice; and
- (b) a plan of the building or facility in which the security enhanced source is—
 - (i) stored; or
 - (ii) used in the carrying out of a radiation practice; and
- (c) the administrative security actions proposed to be taken for each threat level to protect the area in which the source is located.

26D Control of access to, or use of, a security enhanced source

The security plan must include a statement providing details of how access to, or use of, a security enhanced source is to be controlled for each threat level, including—

- (a) the supervision requirements for persons who may be allowed access to a security enhanced source; and
- (b) the type of check each person will be required to undertake to gain access to the source; and

- (c) the physical barriers to deter and delay unauthorised access to the source.

Examples of physical barriers—

tamper-proof locks, bolts or armoured cupboards

26E Security equipment

The security plan must include a statement providing details of security equipment used for each threat level to protect a security enhanced source, including—

- (a) each type of security equipment to be installed including details of—
 - (i) how and when the equipment is to be used; and
 - (ii) the intervals at which the equipment is to be checked for wear and tear and correct operation; and
 - (iii) the outcome of an equipment check; and
 - (iv) the person who will be required to check the equipment, described by reference to the abilities of the person to perform the task; and
- (b) procedures to be followed before, during and after a technical service.

26F Security persons and surveillance

The security plan must include a statement providing details of security persons and surveillance used for each threat level to guard a security enhanced source, including—

- (a) the duties and responsibilities allocated to persons in charge of security; and
- (b) how surveillance of a security enhanced source will be conducted.

[s 26G]

26G Security related information and other records

- (1) The security plan must include a statement providing details for each threat level of how the possession licensee proposes to record and maintain—
 - (a) inventories and documents related to the management of security enhanced sources; and
 - (b) details about ensuring the security of security related information, including—
 - (i) who is responsible for the information; and
 - (ii) what information must be kept secure; and
 - (iii) where the information is kept; and
 - (iv) who is allowed access to the information; and
 - (v) how the information is kept secure.

- (2) In this section—

security related information means information about the measures and infrastructure used for each threat level to secure a security enhanced source.

Example of security related information—

information related to a specific security system, pin codes, passwords or where keys are stored

26H Security response arrangements

The security plan must include a statement providing details of—

- (a) the contingency and security response arrangements including the process for notification of a security breach; and
- (b) the actions to be taken in the event of a change in the threat level.

Division 3 Transport security measures for a security enhanced source

26I Matters to be included in a transport security plan—Act, s 34H

The matters stated in this division are the transport security measures and particulars that must be stated in a transport security plan.

26J Purpose and risk identification

The transport security plan must include a statement providing details of—

- (a) the purpose or reason for which the source is being transported; and
- (b) the administrative security actions proposed to be taken for each threat level to address security risks identified.

26K Transportation methods and procedures

The transport security plan must include a statement providing details for each threat level of—

- (a) the vehicle in which the source will be transported and the arrangements for securing the transport during the journey or while stopped en route; and
- (b) the arrangements for notifying, as considered appropriate, a local police service or the regulatory authority of each jurisdiction in which the source will be transported; and
- (c) the name, business address and after hours contact details for the consignor, consignee, carrier and, where used, guard or police service; and
- (d) the means of communicating between the parties involved in the transport of the source; and

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- (e) the contingency or emergency procedures for vehicle accidents or breakdown; and
- (f) the planned principal route and an alternative route.

26L Transport security equipment

The transport security plan must include a statement providing details of the type of security related equipment to be used for each threat level, including—

- (a) how and when the equipment is to be used; and
- (b) the intervals at which the equipment is to be checked for wear and tear and correct operation; and
- (c) the outcomes of the checking procedures; and
- (d) the person who will be required to check the equipment, described by reference to the abilities of the person to perform the task.

26M Transport security persons

The transport security plan must include a statement providing details of the security persons used for each threat level to guard a security enhanced source during transport, including—

- (a) allocated duties and responsibilities for persons in relation to the security requirements; and
- (b) the type of security check each person will be required to undergo in order to undertake their transport related activities with the source; and
- (c) the security briefing for persons involved in the transport of the source including the nature of the threat, the threat level, contingency procedures and security response arrangements.

26N Control of access to a security enhanced source during transport

The transport security plan must include a statement providing details for each threat level of—

- (a) how access to the source will be controlled; and
- (b) the supervision requirements of persons who may be allowed access to a security enhanced source.

26O Security related information about transport

(1) The transport security plan must include a statement providing details for each threat level of how the possession licensee will secure security related information, including—

- (a) who is responsible for the information; and
- (b) what information must be kept secure; and
- (c) where the information is kept; and
- (d) who is allowed access to the information; and
- (e) how the information is kept secure.

(2) In this section—

security related information means information about the measures and infrastructure used for each threat level to secure a security enhanced source during transport.

Example of security related information—

information related to travel routes, pin codes, passwords or where keys are stored

26P Transport security response arrangements

The transport security plan must include a statement providing details of—

- (a) the contingency and transport security response arrangements including the process for notification of a security breach; and

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- (b) the actions to be taken in the event of a change in the threat level.

Part 6 Radiation safety officers

27 Qualifications—Act, s 36(3)

For section 36(3) of the Act, a possession licensee who is not a qualified person may appoint himself or herself as a radiation safety officer for a radiation practice stated in schedule 3, column 1 if the licensee is the holder of a qualification stated in schedule 3, column 2 shown opposite the practice.

28 Functions—Act, ss 37(2)(b)(iii) and 224(5)(b)(iii)

- (1) For section 37(2)(b)(iii) of the Act, the other persons are—
 - (a) persons who observe the carrying out of the radiation practice, other than persons stated in section 37(2)(b)(i) and (ii) of the Act; and
 - (b) if the radiation practice is a diagnostic or therapeutic procedure involving the irradiation of a person (the *treated person*)—persons involved in carrying out the procedure, other than the treated person and persons stated in section 37(2)(b)(i) and (ii) of the Act.
- (2) For section 224(5)(b)(iii) of the Act, the other persons are—
 - (a) persons who observe the carrying out of the radiation practice, other than persons stated in section 224(5)(b)(i) and (ii) of the Act; and
 - (b) if the radiation practice is a diagnostic or therapeutic procedure involving the irradiation of a person (also the *treated person*)—persons involved in carrying out the procedure, other than the treated person and persons stated in section 224(5)(b)(i) and (ii) of the Act.

Part 7 Radiation monitoring

29 **Information in personal monitoring records—Act, s 38(4)(b)**

For section 38(4)(b) of the Act, the other information is the following—

- (a) the name, gender and date of birth of the monitored person;
- (b) the name and postal address of the licensee;
- (c) the date the monitored person started to be monitored for any radiation doses received in relation to the carrying out of the practice;
- (d) the date the monitored person ceased to be monitored for any radiation doses received in relation to the carrying out of the practice;
- (e) details of the basis for the monitored person being required to be provided, or wear, a personal monitoring device;
- (f) the type of radiation to which the monitored person has been exposed in relation to the carrying out of the practice;
- (g) the period the assessment of a personal monitoring device worn by the monitored person, in relation to the carrying out of the practice, relates to;
- (h) the estimated total effective dose, determined as a result of the assessment, for the monitored person for the period;
- (i) details of the methodology used in the assessment.

Part 8 Radiation dose limits

Division 1 Ionising radiation

30 Radiation dose limits applying for occupational exposure of persons—Act, ss 37(2)(c)(i), 41(5), 42(2), 127(1)(b), 132(4)(b), 133(2)(c) and 224(5)(c)(i)

- (1) This section applies if a possession licensee, under the licence, possesses an ionising radiation source for a radiation practice.
- (2) For sections 37(2)(c)(i), 41(5), 42(2), 127(1)(b), 132(4)(b), 133(2)(c) and 224(5)(c)(i) of the Act, the radiation dose limits applying to the occupational exposure of a person to ionising radiation while involved in carrying out the practice are as follows—
 - (a) the average of the annual total effective doses for the person, over a 5 year period, must not be more than 20mSv a year;
 - (b) the total effective dose for the person must not be more than 50mSv a year;
 - (c) the equivalent dose for each lens of the person's eyes must not be more than 150mSv a year;
 - (d) the equivalent dose for each of the person's hands and feet must not be more than 500mSv a year;
 - (e) the equivalent dose for a square centimetre of the person's skin must not be more than 500mSv a year.
- (3) For sections 37(2)(c)(i), 41(5), 42(2), 127(1)(b), 132(4)(b), 133(2)(c) and 224(5)(c)(i) of the Act, the radiation dose limits applying to the occupational exposure of a person to ionising radiation emitted from the source, other than while involved in carrying out the practice, are as follows—
 - (a) the total effective dose for the person must not be more than 1mSv a year;

- (b) the equivalent dose for each lens of the person's eyes must not be more than 15mSv a year;
- (c) the equivalent dose for a square centimetre of the person's skin must not be more than 50mSv a year.

31 Radiation dose limits applying for public exposure of persons—Act, ss 37(2)(c)(i), 42(2), 127(1)(b), 132(4)(b), 133(2)(c) and 224(5)(c)(i)

- (1) This section applies if a possession licensee, under the licence, possesses an ionising radiation source for a radiation practice.
- (2) For sections 37(2)(c)(i), 42(2), 127(1)(b), 132(4)(b), 133(2)(c) and 224(5)(c)(i) of the Act, the radiation dose limits applying to the public exposure of a person to ionising radiation while the practice is carried out are as follows—
 - (a) the total effective dose for the person must not be more than 1mSv a year;
 - (b) the equivalent dose for each lens of the person's eyes must not be more than 15mSv a year;
 - (c) the equivalent dose for a square centimetre of the person's skin must not be more than 50mSv a year.
- (3) Subsection (2) does not apply if the person is exposed—
 - (a) if the practice is a diagnostic or therapeutic procedure involving the irradiation of another person—while involved in carrying out the procedure; or
 - (b) while involved in carrying out the practice, as a voluntary participant in health-related research.

32 Radiation dose limits applying for the carrying out of a diagnostic or therapeutic procedure involving the irradiation of a person—Act, ss 37(2)(c)(i), 41(5), 127(1)(b), 132(4)(b), 133(2)(c) and 224(5)(c)(i)

- (1) This section applies if—

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- (a) a use licensee, under the licence, is using an ionising radiation source to carry out a diagnostic or therapeutic procedure involving the irradiation of a person (the *treated person*); and
 - (b) a person, other than the treated person, involved in carrying out the procedure is exposed to ionising radiation.
- (2) For sections 37(2)(c)(i), 41(5), 127(1)(b), 132(4)(b), 133(2)(c) and 224(5)(c)(i) of the Act, the radiation dose limit applying to the exposure is a total effective dose of 5mSv a year.
- (3) Subsection (2) does not apply if the exposure is an occupational exposure to the radiation.

34 Supply of personal monitoring devices—Act, s 28(3)

For section 28(3) of the Act, the radiation dose limit for ionising radiation is a total effective dose of 1mSv a year.

35 Pregnant women—Act, ss 37(2)(c)(i), 41(5), 42(2), 127(1)(b), 132(4)(b), 133(2)(c) and 224(5)(c)(i)

- (1) This section applies if a possession licensee, under the licence, possesses an ionising radiation source for a radiation practice.
- (2) For sections 37(2)(c)(i), 41(5), 42(2), 127(1)(b), 132(4)(b), 133(2)(c) and 224(5)(c)(i) of the Act, the radiation dose limit applying to the occupational exposure of a pregnant woman to ionising radiation while involved in carrying out the practice is a total effective dose of 1mSv a year.
- (3) However, for section 127(1)(b) of the Act, subsection (2) only applies if the inspector is aware, or ought reasonably be aware, the woman is pregnant.
- (4) Also, subsection (2) does not apply if—
 - (a) for section 41(5) of the Act—the use licensee who, under the licence, uses the source to carry out the

- practice is not aware, or could not reasonably be aware, the woman is pregnant; or
- (b) for section 42(2) of the Act—the person carrying out the practice is not aware, or could not reasonably be aware, the woman is pregnant.

35A Mineral substances that are not radioactive substances

- (1) This section applies to a person who possesses a mineral substance that is a radioactive material that is not a radioactive substance.
- (2) The person must ensure that another person does not receive a total effective dose from ionising radiation emitted from the substance that is—
- (a) for public exposure of the other person—more than 1mSv a year; or
- (b) for occupational exposure of the other person—more than 20mSv a year.

Maximum penalty—20 penalty units.

Division 2 Non-ionising radiation

36 Functions of radiation safety officers—Act, ss 37(2)(c)(ii) and 224(5)(c)(ii)

For sections 37(2)(c)(ii) and 224(5)(c)(ii) of the Act, the radiation dose limits for non-ionising radiation emitted by a laser apparatus used to carry out a diagnostic, therapeutic or cosmetic procedure involving the irradiation of a person are stated in tables 6 and 8 of the laser standard.

37 Carrying out diagnostic or therapeutic procedures involving the irradiation of a person—Act, s 41(5)

For section 41(5) of the Act, the radiation dose limits for non-ionising radiation emitted by a laser apparatus used to

[s 38]

carry out a diagnostic or therapeutic procedure involving the irradiation of a person are stated in tables 6 and 8 of the laser standard.

38 Carrying out cosmetic procedures involving the irradiation of a person—Act, s 42(2)

For section 42(2) of the Act, the radiation dose limits for non-ionising radiation emitted by a laser apparatus used to carry out a cosmetic procedure involving the irradiation of a person are stated in tables 6 and 8 of the laser standard.

39 Seizing dangerous things—Act, ss 127(1)(b), 132(4)(b) and 133(2)(c)

For sections 127(1)(b), 132(4)(b) and 133(2)(c) of the Act, the radiation dose limits for non-ionising radiation emitted by a laser apparatus used to carry out a diagnostic, therapeutic or cosmetic procedure involving the irradiation of a person are stated in tables 6 and 8 of the laser standard.

Part 8A Authorised persons

39A Authorised persons for diagnostic or therapeutic procedures—Act, s 41

For section 41(1) of the Act—

- (a) for a diagnostic procedure stated in schedule 3A, part 1, column 1, a person stated in schedule 3A, part 1, column 2 opposite the procedure is an authorised person; and
- (b) for a therapeutic procedure stated in schedule 3A, part 2, column 1, a person stated in schedule 3A, part 2, column 2 opposite the procedure is an authorised person.

39B Physician's assistants authorised under practice plans—Act, s 41

A physician's assistant is authorised to request a diagnostic procedure stated in schedule 3A, part 1, column 1 if—

- (a) the practice plan developed for the physician states that the physician's assistant may request the diagnostic procedure; and
- (b) the physician's assistant requests the diagnostic procedure under the supervision of his or her supervising medical officer; and
- (c) the supervising medical officer is authorised under section 39A to request the diagnostic procedure stated in schedule 3A, part 1, column 1.

Part 8B Banned radiation practices

39C Prescribed matters for banning of certain radiation practices—Act, s 47A

- (1) A minor is a person prescribed for section 47A(1) of the Act if the prescribed radiation source is a solarium.
- (2) The circumstances prescribed for section 47A(1) of the Act are, if the prescribed radiation source is a solarium, any circumstances other than the following—
 - (a) use of a solarium by a health practitioner to carry out a diagnostic or therapeutic procedure;
 - (b) use of a privately owned solarium in a private residence.
- (3) In this section—

privately owned, in relation to a solarium, means owned by an individual and is not used in connection with a business.

[s 40]

solarium means an electrically powered apparatus designed to produce tanning of human skin by exposure of the skin to non-ionising radiation emitted by the apparatus.

Part 9 Exemptions

Division 1 Requirement for use licence

40 Prescribed radiation practices—Act, s 13(3)

- (1) For section 13(3) of the Act, the following are prescribed radiation practices—
 - (a) industrial radiography involving the use of an ionising radiation source;
 - (b) borehole logging involving the use of a sealed source apparatus;
 - (c) density-gauging, or moisture-gauging, for geo-technical purposes, involving the use of a sealed source apparatus;
 - (d) the preparation of a radioactive substance or radiation apparatus, or assembly of a sealed source apparatus, for use in carrying out a diagnostic or therapeutic procedure involving the irradiation of a person;
 - (e) the commissioning, maintenance or repair of radiation sources or sealed source apparatus;
 - (f) the compliance testing of a radiation source by a qualified accredited person for a radiation source of that type, involving the use of the source or another radiation source;
 - (g) the compliance testing of premises by a qualified accredited person for premises of that type, involving the use of a radiation source;

-
- (h) the undertaking of quality control procedures, in relation to—
 - (i) a radiation source, involving the use of another radiation source; or
 - (ii) a sealed source apparatus, involving the use of a radiation source.
 - (2) In this section—

compliance testing, of a radiation source or premises, means assessing whether the source or premises complies with the relevant radiation safety standard.

qualified accredited person, for a type of radiation source or premises, means an accredited person who, under the person's accreditation certificate, is allowed to issue a certificate of compliance for the type of radiation source or premises.

41 Training—Act, s 13(2)(b)(ii)

For section 13(2)(b)(ii) of the Act, the following is training—

- (a) training at an educational institution, other than training involving the actual irradiation by the trainee of a person as part of a diagnostic or therapeutic procedure;
- (b) undertaking a course or subject stated in schedule 4.

Division 2 Radiation sources

42 Exemption from requirement for possession licence—Act, s 210

For section 210 of the Act, a radioactive substance containing the radionuclide nickel-63 or hydrogen-3 is exempt from section 12 of the Act if—

- (a) it is incorporated in a sealed source apparatus; and
- (b) the apparatus is used for gas chromatography.

[s 43]

43 Exemption from requirement for use licence—Act, s 210

- (1) For section 210 of the Act, the following radiation sources are exempt from section 13 of the Act—
- (a) if a sealed source apparatus, incorporating a sealed radioactive substance, is used for chemical analysis or industrial gauging—the substance;
 - (b) a radiation apparatus used for industrial gauging;
 - (c) a cabinet radiation apparatus used for its intended use;
 - (d) an enclosed radiation apparatus used for its intended use;
 - (e) an ionising radiation source designed only for irradiating things, but not including use of the source by a person who is carrying out commissioning, maintenance or repair of the source;
 - (f) a sealed radioactive substance, having an activity of not more than 370MBq, used for—
 - (i) calibration checks of measuring instruments; or
 - (ii) quality control procedures undertaken for—
 - (A) another radiation source or a sealed source apparatus; or
 - (B) if another radiation source is used to carry out a radiation practice involving the production of images—any ancillary imaging equipment used in connection with the use of the other source to carry out the practice;
 - (g) a sealed radioactive substance, having an activity of not more than 4MBq, used for transferring anatomical landmarks to images produced using a gamma camera;
 - (h) a radioactive substance, having an activity of not more than 500kBq, used for an in vitro test;
 - (i) a sealed radioactive substance used for static elimination;

-
- (j) a fully enclosed analytical radiation apparatus used for its intended use;
 - (k) a laser apparatus designed only for puncturing a person's skin to obtain capillary blood samples but not including use of the apparatus by a person who is carrying out maintenance or repair of the apparatus.
- (2) To remove any doubt, it is declared that subsection (1)(e) does not apply to an ionising radiation source designed for irradiating individuals.

44 Exemption from requirement for transport licence—Act, s 210

- (1) For section 210 of the Act, a radioactive substance enclosed in an excepted package is exempt from sections 14 and 15 of the Act if the package is transported in accordance with the transport code of practice.
- (2) Subsection (3) applies to a sealed radioactive substance incorporated in a sealed source apparatus, if the apparatus is used by a use licensee under a use licence to carry out 1 of the following radiation practices—
- (a) borehole logging;
 - (b) density-gauging, or moisture-gauging, for geo-technical purposes;
 - (c) industrial radiography.
- (3) For section 210 of the Act, the substance is exempt from sections 14 and 15 of the Act if the apparatus is transported by the licensee in accordance with the transport code of practice.
- (4) In this section—
excepted package has the meaning given in the transport code of practice.

45 Smoke detectors—Act, s 210

- (1) For section 210 of the Act—

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- (a) a radioactive substance incorporated in a domestic smoke detector is exempt from sections 12, 13 and 26 of the Act; and
- (b) a radioactive substance incorporated in an ionisation chamber smoke detector that is not a domestic smoke detector is exempt from sections 12 and 13 of the Act if the detector was—
 - (i) acquired before 1 January 2000; or
 - (ii) manufactured in accordance with AS 1603.2-1997 (Automatic fire detection and alarm systems, Part 2: Point type smoke detectors).
- (2) To remove any doubt, it is declared that subsection (1) does not apply while the detector is being manufactured or repaired.
- (3) In this section—

domestic smoke detector means an ionisation chamber smoke detector containing the radionuclide americium-241 having an activity of not more than 37kBq and manufactured in accordance with AS 3786-1993 (Smoke alarms), 2nd ed.

46 Certain radioactive substances, incorporated in items to produce light—Act, s 210

- (1) For section 210 of the Act—
 - (a) a radioactive substance containing the radionuclide promethium-147 or hydrogen-3, incorporated in an item to produce light is exempt from sections 12, 13 and 26 of the Act; and
 - (b) a radioactive substance containing the radionuclide radium-226, incorporated in an item to produce light is exempt from sections 12 and 13 of the Act.
- (2) Subsection (1) does not apply if the item is a gaseous tritium light device.
- (3) Also, to remove doubt, it is declared that subsection (1) does not apply while the item is being manufactured or repaired.

47 Gaseous tritium light devices—Act, s 210

For section 210 of the Act, a radioactive substance containing the radionuclide hydrogen-3 with an activity of less than 74GBq, incorporated in a gaseous tritium light device, is exempt from sections 12 and 13 of the Act if the device—

- (a) is being used as a safety, or warning, sign; and
- (b) complies with sections 2, 4 and 5 of the document entitled ‘Appendix XXXIX—Recommendations for exemptions from licensing of gaseous tritium light devices’ prepared by NHMRC.

48 Depleted uranium—Act, s 210

(1) For section 210 of the Act, depleted uranium is exempt from sections 12, 14 and 15 of the Act if it is—

- (a) being used as ballast in an aircraft or ship; and
- (b) totally encased in a metallic sheath; and
- (c) in solid massive form.

(2) In this section—

depleted uranium means uranium containing less than 0.72% of the radionuclide uranium-235.

49 Sealed radioactive substances used in teaching—Act, s 210

(1) This section applies to a sealed radioactive substance containing a radionuclide mentioned in column 1 of the following table if the activity of the radionuclide is not more than the activity mentioned in column 2 of the table shown opposite the radionuclide—

[s 50]

Table

| Column 1 | Column 2 |
|---------------------|-----------------------|
| Radionuclide | Activity (kBq) |
| cobalt-60 | 200 |
| strontium-90 | 80 |
| caesium-137 | 200 |
| radium-226 | 20 |
| americium-241 | 20 |

- (2) For section 210 of the Act, the substance is exempt from section 13 of the Act if it is being used for teaching the characteristics and properties of radiation or radiation sources.

50 Minerals—Act, s 210

- (1) This section applies to a mineral that is a radioactive substance.
- (2) For section 210 of the Act, the mineral is exempt from section 12 of the Act if—
- (a) it emits radiation at a level not more than 5 micrograys an hour, measured at a distance of 10cm from its surface; and
 - (b) it is being used—
 - (i) as a sample in teaching; or
 - (ii) for display as a geological specimen.

51 Abrasive blasting material containing radionuclides—Act, s 210

- (1) This section applies to abrasive blasting material, containing radionuclides, if it is being used in abrasive blasting.
- (2) Subsection (3) applies if—

-
- (a) the material is a radioactive substance; and
 - (b) the material contains thorium or uranium radionuclides.
- (3) For section 210 of the Act, the material is exempt from section 12 of the Act if the amount worked out, using the following formula, in relation to the material is not more than 1—

$$(0.1 \times U) + (0.2 \times Th)$$

where—

Th means the total concentration, stated in Bq a gram, of any thorium radionuclides and their progeny contained in the material.

U means the total concentration, stated in Bq a gram, of any uranium radionuclides and their progeny contained in the material.

- (4) Further, material that is, under subsection (3), exempt from section 12 of the Act is also exempt from section 26 of the Act if the gross alpha and gross beta concentrations in the leachate, determined as a result of carrying out the TCLP in relation to the material, are not each more than the amount worked out by multiplying the relevant concentration stated in the document entitled ‘Australian Drinking Water Guidelines’, jointly prepared by NHMRC and ARMCANZ, by 10.

52 Mineral substances—Act, s 210

- (1) Subsection (2) applies to a mineral substance being disposed of, other than into the air, water or sewerage system.
- (2) The substance is exempt from section 26 of the Act if—
 - (a) the gross alpha and gross beta concentrations in the leachate, determined as a result of carrying out the TCLP in relation to the substance, are not each more than the amount worked out by multiplying the relevant concentration stated in the document entitled ‘Australian

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Drinking Water Guidelines', jointly prepared by NHMRC and ARMCANZ, by 10; and

- (b) for a substance that contains—
- (i) only 1 of the radionuclides stated in schedule 1, column 1—the concentration of the radionuclide is less than the amount worked out by multiplying the concentration stated in schedule 1, column 2 shown opposite the radionuclide by 10; or
 - (ii) more than 1 of the radionuclides stated in schedule 1, column 1—the substance's disposal factor is not more than 1.
- (3) In this section—

disposal factor, for a mineral substance containing more than 1 of the radionuclides stated in schedule 1, column 1, means the total of the amounts worked out by applying the following formula to each of the radionuclides—

$$\frac{C}{MC}$$

where—

C, for a radionuclide, means the radionuclide's concentration, measured in Bq a gram.

MC, for a radionuclide, means the amount worked out by multiplying the concentration stated in schedule 1, column 2 shown opposite the radionuclide by 10.

53 Persons who have been injected with a radioactive substance etc. as part of a diagnostic or therapeutic procedure—Act, s 210

- (1) This section applies if—
- (a) a person has been injected with a radioactive substance, or a radioactive substance has been administered to or implanted in a person, as part of a diagnostic or therapeutic procedure; and

-
- (b) the person disposes of the substance's radionuclide as part of his or her bodily waste.
- (2) For section 210 of the Act, the bodily waste is exempt from section 26 of the Act only to the extent that it is disposed of by the person.

Note—

This section does not exempt any other person from the requirements of section 26 of the Act in relation to the disposal of the bodily waste.

53AA Radionuclide krypton-85, incorporated in a cold cathode gas discharge tube—Act, s 210

- (1) For section 210 of the Act, a radioactive substance containing the radionuclide krypton-85, incorporated in a cold cathode gas discharge tube, is exempt from sections 12, 13 and 26 of the Act.
- (2) To remove any doubt, it is declared that subsection (1) does not apply while the tube is being manufactured or repaired.

Part 9A Registers

53A Register of licensees—Act, s 207

For section 207(2) of the Act, the register the chief executive must keep about licensees must contain the following information about a licensee—

- (a) the licensee's name;
- (b) the licence number;
- (c) the licence type;
- (d) the expiry date of the licence;
- (e) any conditions on the licence;
- (f) if the licensee is a possession licensee—

[s 53B]

- (i) particulars of the radiation source the licensee is allowed to possess; and
- (ii) the radiation practice for which the licensee is allowed to possess the source;
- (g) if the licensee is a use licensee—
 - (i) particulars of the radiation source the licensee is allowed to use; and
 - (ii) the radiation practice the licensee is allowed to carry out using the source;
- (h) if the licensee is a transport licensee—
 - (i) particulars of the radioactive substance the licensee is allowed to transport; and
 - (ii) how the substance is to be transported; and
 - (iii) the amount of the substance the licensee is allowed to transport at a time.

53B Register of accredited persons—Act, s 207

For section 207(2) of the Act, the register the chief executive must keep about accredited persons must contain the following information about an accredited person—

- (a) the accredited person's name;
- (b) the accreditation certificate number;
- (c) the expiry date of the accreditation certificate;
- (d) any conditions on the accreditation certificate;
- (e) the type of radiation source or premises for which the accredited person may issue a certificate;
- (f) the accredited person's contact details.

Examples of contact details—

address, telephone number, facsimile number, email address

53C Register of qualified persons—Act, s 207

For section 207(2) of the Act, the register the chief executive must keep about qualified persons must contain the following information about a qualified person—

- (a) the qualified person's name;
- (b) the radiation safety officer certificate number;
- (c) the expiry date of the radiation safety officer certificate;
- (d) any conditions on the radiation safety officer certificate;
- (e) the radiation practice for which the qualified person may perform the functions of a radiation safety officer.

53D Register of inspectors—Act, s 207

For section 207(2) of the Act, the register the chief executive must keep about inspectors must contain the following information about an inspector—

- (a) the inspector's name;
- (b) if the inspector is appointed for a term—the term of the appointment;
- (c) any conditions of the inspector's appointment.

53E Register of State radiation analysts—Act, s 207

For section 207(2) of the Act, the register the chief executive must keep about State radiation analysts must contain the following information about a State radiation analyst—

- (a) the State radiation analyst's name;
- (b) if the State radiation analyst is appointed for a term—the term of the appointment;
- (c) any conditions of the State radiation analyst's appointment.

[s 53F]

Part 9B **Disclosure of protected information**

53F **Disclosure of protected information**

For section 209(4) of the Act, the purposes for which protected information may be disclosed by the chief executive are as follows—

- (a) for the development of a plan to avoid or limit the impact of an emergency situation upon persons, property or the environment;
- (b) to enable persons dealing with an emergency situation to know the hazards, or possible hazards, the persons may face in dealing with the emergency situation;
- (c) to protect national security, including, for example—
 - (i) to facilitate the tracking of radiation sources within or outside Australia; and
 - (ii) to enable State or national alerts, advisories and other relevant information to be provided about an incident involving a radiation source; and
 - (iii) in the case of a security breach relating to a radiation source, to enable a coordinated response to be initiated and implemented; and
 - (iv) to monitor and evaluate initiatives implemented to ensure the security of radiation sources; and
 - (v) to help the development, review or improvement of policies, operational guidelines, codes, standards or legislation relating to national security; and
 - (vi) to develop or implement training programs about the security of radiation sources, including policies, codes, standards or legislation relating to the programs; and

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- (vii) to undertake or facilitate research about best practice associated with the security of radiation sources.

Part 10 Fees

54 Fees—general

The fees payable under the Act are stated in schedule 5.

55 Fees—Act, s 51(1)(c)(i)

- (1) Subsection (2) applies to an application for a possession licence for the possession of a radioactive substance for a radiation practice.
- (2) For section 51(1)(c)(i) of the Act, the fee is the total of the following—
 - (a) an application fee;
 - (b) a licence fee consisting of—
 - (i) a base fee; and
 - (ii) a fee calculated having regard to the number of sealed radioactive substances, or types of unsealed radioactive substances, the subject of the application.
- (3) Subsection (4) applies to an application for a possession licence for the possession of a radiation apparatus for a radiation practice.
- (4) For section 51(1)(c)(i) of the Act, the fee is the total of the following—
 - (a) an application fee;
 - (b) a licence fee consisting of—
 - (i) a base fee; and

[s 56]

- (ii) a fee calculated having regard to the number of radiation apparatus the subject of the application.
- (5) Subsection (6) applies to an application for a use or transport licence.
- (6) For section 51(1)(c)(i) of the Act, the fee is the total of the following—
 - (a) an application fee;
 - (b) a licence fee.
- (7) Subsection (8) applies to an application for an accreditation certificate.
- (8) For section 51(1)(c)(i) of the Act, the fee is the total of the following—
 - (a) an application fee;
 - (b) an accreditation certificate fee.
- (9) Subsection (10) applies to an application for a radiation safety officer certificate.
- (10) For section 51(1)(c)(i) of the Act, the fee is the total of the following—
 - (a) an application fee;
 - (b) a radiation safety officer certificate fee.

56 Fees—Act, s 79(2)(b)(i)

- (1) Subsection (2) applies to an application for the renewal of a possession licence for the possession of a radioactive substance for a radiation practice.
- (2) For section 79(2)(b)(i) of the Act, the fee is the total of the following—
 - (a) a base fee;
 - (b) a fee calculated having regard to the number of sealed radioactive substances, or types of unsealed radioactive substances, the subject of the application.

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- (3) Subsection (4) applies to an application for the renewal of a possession licence for the possession of a radiation apparatus for a radiation practice.
 - (4) For section 79(2)(b)(i) of the Act, the fee is the total of the following—
 - (a) a base fee;
 - (b) a fee calculated having regard to the number of radiation apparatus the subject of the application.
 - (5) Subsection (6) applies to an application for the renewal of a use or transport licence.
 - (6) For section 79(2)(b)(i) of the Act, the fee is a licence fee.
 - (7) Subsection (8) applies to an application for the renewal of an accreditation certificate.
 - (8) For section 79(2)(b)(i) of the Act, the fee is an accreditation certificate fee.
 - (9) Subsection (10) applies to an application for the renewal of a radiation safety officer certificate.
 - (10) For section 79(2)(b)(i) of the Act, the fee is a radiation safety officer certificate fee.

56A Who pays fee for security check or criminal history check—Act, s 103A

The following person must pay the prescribed fee for a security check or criminal history check—

- (a) for a check for an individual applicant for a licence—the applicant;
- (b) for a check for the nominated person for a corporation that is an applicant for a licence—the corporation;
- (c) for a check for a person who is to have access to a security enhanced source under the approved security plan for the source—the possession licensee requesting the check;

[s 57]

- (d) for a check for a person who is to have access to a security enhanced source under the approved transport security plan for the transport of the source—the transport security plan holder requesting the check.

57 Waiver of fees—general

- (1) Subsection (2) applies if—
 - (a) under section 220 of the Act, a person is taken to be the holder of a column 2 licence; and
 - (b) before the expiry of the licence, the person applies for the same type of licence.
- (2) The application fee, payable under this regulation, for the licence is not payable by the person.
- (3) Subsection (4) applies if a person—
 - (a) is required to use a radiation source in the course of the person’s study or training at an educational institution; and
 - (b) under the Act, the person needs a use licence allowing the use of the source.
- (4) The application fee and licence fee, payable under this regulation, for the licence are not payable by the person.
- (5) Subsection (6) applies if—
 - (a) under section 224(3) of the Act, a person is taken to be a radiation safety officer for a radiation practice; and
 - (b) while continuing as a radiation safety officer for the practice, the person applies for a radiation safety officer certificate.
- (6) The application fee, payable under this regulation, for the certificate is not payable by the person.
- (7) Subsection (8) applies to a use licensee who, under the licence, is allowed to use a radiation source to carry out a diagnostic or therapeutic procedure involving the irradiation of a person.

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- (8) If the licensee applies for another use licence to carry out a diagnostic or therapeutic procedure involving the irradiation of a person, the application fee, payable under this regulation, for the licence is not payable by the licensee.
 - (9) The following fees are not payable by the State—
 - (a) the fees stated in schedule 5, parts 1 and 4;
 - (b) the fee for an approval to dispose;
 - (c) the fee for approval to acquire;
 - (d) the fee for approval to relocate.

57A Waiver of fees—undergraduates’ professional development year

- (1) This section applies to a graduate practitioner who, after 31 December 1999—
 - (a) undertakes his or her professional development year; and
 - (b) applies for a use licence to carry out a diagnostic or therapeutic procedure involving the irradiation of another person during the person’s professional development year.
- (2) The application fee payable under this regulation for the licence is not payable by the graduate practitioner.
- (3) In this section—

accrediting body means the Australian Institute of Radiography or the Australian and New Zealand Society of Nuclear Medicine.

graduate practitioner means a person who—

- (a) is a graduate from an undergraduate medical radiation science degree course accredited by an accrediting body, regardless of the title of the course; or
- (b) is assessed by an accrediting body to be the equivalent of a person mentioned in paragraph (a).

[s 57B]

professional development year means the period, the equivalent of 48 weeks full-time work, during which a graduate practitioner must work under the guidance of another practitioner before the graduate practitioner is recognised as an accredited practitioner by an accrediting body.

57B Waiver of fee—licensee applying for new licences within the transitional period

- (1) This section applies if a relevant licensee makes a relevant application and a relevant licence fee becomes payable.
- (2) The relevant licence fee, otherwise payable under this regulation, is not payable by the relevant licensee.
- (3) In this section—

relevant application means—

- (a) an application for a new possession licence under section 232(4) of the Act; or
- (b) an application for a new use licence under section 233(2) of the Act; or
- (c) an application for a new transport licence under section 234(2) of the Act.

relevant licence fee means—

- (a) the application fee for a possession licence—schedule 5, item 1(a); or
- (b) the base fee for a possession licence for 1 year or less—schedule 5, item 2(a)(i); or
- (c) the application fee for a use or transport licence—schedule 5, item 7; or
- (d) the use or transport licence fee for 1 year or less—schedule 5, item 8(a).

relevant licensee means—

- (a) a possession licensee to whom section 232 of the Act applies; or

- (b) a use licensee to whom section 233 of the Act applies;
or
- (c) a transport licensee to whom section 234 of the Act applies.

58 Refund of fees

- (1) The chief executive must as soon as practicable refund the fees, other than the application fee, paid on an application for the grant or renewal of an accreditation certificate, licence or radiation safety officer certificate if—
 - (a) the chief executive refuses to grant the application; or
 - (b) the applicant withdraws the application before it is decided.
- (2) The chief executive must not refund any of the following fees—
 - (a) an application by a possession licensee to change the licensee's approved security plan;
 - (b) an application for approval of a transport security plan;
 - (c) an application by a transport security plan holder to change the holder's approved transport security plan;
 - (d) an application for approval to acquire;
 - (e) an application for approval to dispose;
 - (f) an application for approval to relocate;
 - (g) an application by the holder of a conditional Act instrument to change the conditions of the instrument imposed by the chief executive;
 - (h) an application by a possession licensee to change the licensee's approved radiation safety and protection plan for a radiation practice.

Schedule 1 Radionuclide concentrations and activities

sections 4, 5, 12 and 52

| Item | Column 1 Radionuclide | Column 2 Concentration (Bq/g) | Column 3 Activity (Bq) |
|------|-----------------------------|-------------------------------------|---------------------------|
| 1 | Actinium-225 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 2 | Actinium-227 | 1×10^{-1} | $1 \times 10^{+3}$ |
| 3 | Actinium-228 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 4 | Americium-241 | 1×10^0 | $1 \times 10^{+4}$ |
| 5 | Americium-242 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 6 | Americium-242m ¹ | 1×10^0 | $1 \times 10^{+4}$ |
| 7 | Americium-243 ¹ | 1×10^0 | $1 \times 10^{+3}$ |
| 8 | Antimony-122 | $1 \times 10^{+2}$ | $1 \times 10^{+4}$ |
| 9 | Antimony-124 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 10 | Antimony-125 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 11 | Argon-37 | $1 \times 10^{+6}$ | $1 \times 10^{+8}$ |
| 12 | Argon-41 | $1 \times 10^{+2}$ | $1 \times 10^{+9}$ |
| 13 | Arsenic-73 | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |
| 14 | Arsenic-74 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 15 | Arsenic-76 | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 16 | Arsenic-77 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 17 | Astatine-211 | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |
| 18 | Barium-131 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 19 | Barium-133 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 20 | Barium-140 ¹ | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 21 | Berkelium-249 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 22 | Beryllium-7 | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |
| 23 | Bismuth-206 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 24 | Bismuth-207 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |

| Item | Column 1 Radionuclide | Column 2 Concentration (Bq/g) | Column 3 Activity (Bq) |
|-------------|----------------------------------|--|-----------------------------------|
| 25 | Bismuth-210 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 26 | Bismuth-212 ¹ | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 27 | Bismuth-213 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 28 | Bromine-75 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 29 | Bromine-76 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 30 | Bromine-82 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 31 | Cadmium-109 | $1 \times 10^{+4}$ | $1 \times 10^{+6}$ |
| 32 | Cadmium-115 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 33 | Cadmium-115m | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 34 | Caesium-129 | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 35 | Caesium-131 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 36 | Caesium-132 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 37 | Caesium-134 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 38 | Caesium-134m | $1 \times 10^{+3}$ | $1 \times 10^{+5}$ |
| 39 | Caesium-135 | $1 \times 10^{+4}$ | $1 \times 10^{+7}$ |
| 40 | Caesium-136 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 41 | Caesium-137 ¹ | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 42 | Caesium-138 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 43 | Calcium-47 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 44 | Calcium-45 | $1 \times 10^{+4}$ | $1 \times 10^{+7}$ |
| 45 | Californium-246 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 46 | Californium-248 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 47 | Californium-249 | 1×10^0 | $1 \times 10^{+3}$ |
| 48 | Californium-250 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 49 | Californium-251 | 1×10^0 | $1 \times 10^{+3}$ |
| 50 | Californium-252 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 51 | Californium-253 | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 52 | Californium-254 | 1×10^0 | $1 \times 10^{+3}$ |
| 53 | Carbon-14 | $1 \times 10^{+4}$ | $1 \times 10^{+7}$ |
| 54 | Carbon-11 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |

Schedule 1

| Item | Column 1 Radionuclide | Column 2 Concentration (Bq/g) | Column 3 Activity (Bq) |
|-------------|----------------------------------|--|-----------------------------------|
| 55 | Cerium-139 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 56 | Cerium-141 | $1 \times 10^{+2}$ | $1 \times 10^{+7}$ |
| 57 | Cerium-143 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 58 | Cerium-144 ¹ | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 59 | Chlorine-36 | $1 \times 10^{+4}$ | $1 \times 10^{+6}$ |
| 60 | Chlorine-38 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 61 | Chromium-51 | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |
| 62 | Cobalt-57 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 63 | Cobalt-56 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 64 | Cobalt-55 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 65 | Cobalt-62m | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 66 | Cobalt-60m | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 67 | Cobalt-60 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 68 | Cobalt-58 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 69 | Cobalt-61 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 70 | Cobalt-58m | $1 \times 10^{+4}$ | $1 \times 10^{+7}$ |
| 71 | Copper-64 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 72 | Copper-67 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 73 | Curium-242 | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 74 | Curium-243 | 1×10^0 | $1 \times 10^{+4}$ |
| 75 | Curium-244 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 76 | Curium-245 | 1×10^0 | $1 \times 10^{+3}$ |
| 77 | Curium-246 | 1×10^0 | $1 \times 10^{+3}$ |
| 78 | Curium-247 | 1×10^0 | $1 \times 10^{+4}$ |
| 79 | Curium-248 | 1×10^0 | $1 \times 10^{+3}$ |
| 80 | Dysprosium-165 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 81 | Dysprosium-166 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 82 | Einsteinium-253 | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 83 | Einsteinium-254 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 84 | Einsteinium-254m | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |

| Item | Column 1 Radionuclide | Column 2 Concentration (Bq/g) | Column 3 Activity (Bq) |
|-------------|----------------------------------|--|-----------------------------------|
| 85 | Erbium-161 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 86 | Erbium-169 | $1 \times 10^{+4}$ | $1 \times 10^{+7}$ |
| 87 | Erbium-171 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 88 | Europium-152 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 89 | Europium-152m | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 90 | Europium-154 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 91 | Europium-155 | $1 \times 10^{+2}$ | $1 \times 10^{+7}$ |
| 92 | Fermium-254 | $1 \times 10^{+4}$ | $1 \times 10^{+7}$ |
| 93 | Fermium-255 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 94 | Fluorine-18 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 95 | Gadolinium-153 | $1 \times 10^{+2}$ | $1 \times 10^{+7}$ |
| 96 | Gadolinium-159 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 97 | Gallium-67 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 98 | Gallium-72 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 99 | Germanium-71 | $1 \times 10^{+4}$ | $1 \times 10^{+8}$ |
| 100 | Germanium-68 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 101 | Gold-198 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 102 | Gold-199 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 103 | Hafnium-181 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 104 | Holmium-166 | $1 \times 10^{+3}$ | $1 \times 10^{+5}$ |
| 105 | Holmium-166m | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 106 | Hydrogen-3 | $1 \times 10^{+6}$ | $1 \times 10^{+9}$ |
| 107 | Indium-111 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 108 | Indium-113m | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 109 | Indium-114m | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 110 | Indium-115m | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 111 | Iodine-123 | $1 \times 10^{+2}$ | $1 \times 10^{+7}$ |
| 112 | Iodine-124 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 113 | Iodine-125 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 114 | Iodine-126 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |

Schedule 1

| Item | Column 1 Radionuclide | Column 2 Concentration (Bq/g) | Column 3 Activity (Bq) |
|-------------|----------------------------------|--|-----------------------------------|
| 115 | Iodine-129 | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 116 | Iodine-130 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 117 | Iodine-131 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 118 | Iodine-132 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 119 | Iodine-133 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 120 | Iodine-134 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 121 | Iodine-135 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 122 | Iridium-190 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 123 | Iridium-192 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 124 | Iridium-194 | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 125 | Iron-52 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 126 | Iron-55 | $1 \times 10^{+4}$ | $1 \times 10^{+6}$ |
| 127 | Iron-59 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 128 | Krypton-74 | $1 \times 10^{+2}$ | $1 \times 10^{+9}$ |
| 129 | Krypton-76 | $1 \times 10^{+2}$ | $1 \times 10^{+9}$ |
| 130 | Krypton-77 | $1 \times 10^{+2}$ | $1 \times 10^{+9}$ |
| 131 | Krypton-79 | $1 \times 10^{+3}$ | $1 \times 10^{+5}$ |
| 132 | Krypton-81 | $1 \times 10^{+4}$ | $1 \times 10^{+7}$ |
| 133 | Krypton-83m | $1 \times 10^{+5}$ | $1 \times 10^{+12}$ |
| 134 | Krypton-85 | $1 \times 10^{+5}$ | $1 \times 10^{+4}$ |
| 135 | Krypton-85m | $1 \times 10^{+3}$ | $1 \times 10^{+10}$ |
| 136 | Krypton-87 | $1 \times 10^{+2}$ | $1 \times 10^{+9}$ |
| 137 | Krypton-88 | $1 \times 10^{+2}$ | $1 \times 10^{+9}$ |
| 138 | Lanthanum-140 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 139 | Lead-203 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 140 | Lead-210 ¹ | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 141 | Lead-212 ¹ | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 142 | Lutetium-177 | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |
| 143 | Magnesium-28 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 144 | Manganese-51 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |

| Item | Column 1 Radionuclide | Column 2 Concentration (Bq/g) | Column 3 Activity (Bq) |
|-------------|----------------------------------|--|-----------------------------------|
| 145 | Manganese-53 | $1 \times 10^{+4}$ | $1 \times 10^{+9}$ |
| 146 | Manganese-52m | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 147 | Manganese-52 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 148 | Manganese-56 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 149 | Manganese-54 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 150 | Mercury-195m | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 151 | Mercury-197 | $1 \times 10^{+2}$ | $1 \times 10^{+7}$ |
| 152 | Mercury-197m | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 153 | Mercury-203 | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 154 | Molybdenum-101 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 155 | Molybdenum-90 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 156 | Molybdenum-93 | $1 \times 10^{+3}$ | $1 \times 10^{+8}$ |
| 157 | Molybdenum-99 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 158 | Neodymium-147 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 159 | Neodymium-149 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 160 | Neptunium-237 ¹ | 1×10^0 | $1 \times 10^{+3}$ |
| 161 | Neptunium-239 | $1 \times 10^{+2}$ | $1 \times 10^{+7}$ |
| 162 | Neptunium-240 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 163 | Nickel-63 | $1 \times 10^{+5}$ | $1 \times 10^{+8}$ |
| 164 | Nickel-59 | $1 \times 10^{+4}$ | $1 \times 10^{+8}$ |
| 165 | Nickel-65 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 166 | Niobium-93m | $1 \times 10^{+4}$ | $1 \times 10^{+7}$ |
| 167 | Niobium-94 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 168 | Niobium-95 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 169 | Niobium-97 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 170 | Niobium-98 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 171 | Nitrogen-13 | $1 \times 10^{+2}$ | $1 \times 10^{+9}$ |
| 172 | Osmium-185 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 173 | Osmium-191 | $1 \times 10^{+2}$ | $1 \times 10^{+7}$ |
| 174 | Osmium-191m | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |

Schedule 1

| Item | Column 1 Radionuclide | Column 2 Concentration (Bq/g) | Column 3 Activity (Bq) |
|-------------|----------------------------------|--|-----------------------------------|
| 175 | Osmium-193 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 176 | Oxygen-15 | $1 \times 10^{+2}$ | $1 \times 10^{+9}$ |
| 177 | Palladium-103 | $1 \times 10^{+3}$ | $1 \times 10^{+8}$ |
| 178 | Palladium-109 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 179 | Phosphorus-32 | $1 \times 10^{+3}$ | $1 \times 10^{+5}$ |
| 180 | Phosphorus-33 | $1 \times 10^{+5}$ | $1 \times 10^{+8}$ |
| 181 | Platinum-191 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 182 | Platinum-193m | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |
| 183 | Platinum-197 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 184 | Platinum-197m | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 185 | Plutonium-234 | $1 \times 10^{+2}$ | $1 \times 10^{+7}$ |
| 186 | Plutonium-235 | $1 \times 10^{+2}$ | $1 \times 10^{+7}$ |
| 187 | Plutonium-236 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 188 | Plutonium-237 | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |
| 189 | Plutonium-238 | 1×10^0 | $1 \times 10^{+4}$ |
| 190 | Plutonium-239 | 1×10^0 | $1 \times 10^{+4}$ |
| 191 | Plutonium-240 | 1×10^0 | $1 \times 10^{+3}$ |
| 192 | Plutonium-241 | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 193 | Plutonium-242 | 1×10^0 | $1 \times 10^{+4}$ |
| 194 | Plutonium-243 | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |
| 195 | Plutonium-244 | 1×10^0 | $1 \times 10^{+4}$ |
| 196 | Polonium-203 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 197 | Polonium-205 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 198 | Polonium-207 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 199 | Polonium-210 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 200 | Potassium-43 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 201 | Potassium-42 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 202 | Potassium-40 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 203 | Praseodymium-142 | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 204 | Praseodymium-143 | $1 \times 10^{+4}$ | $1 \times 10^{+6}$ |

| Item | Column 1 Radionuclide | Column 2 Concentration (Bq/g) | Column 3 Activity (Bq) |
|-------------|----------------------------------|--|-----------------------------------|
| 205 | Promethium-147 | $1 \times 10^{+4}$ | $1 \times 10^{+7}$ |
| 206 | Promethium-149 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 207 | Protactinium-230 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 208 | Protactinium-231 | 1×10^0 | $1 \times 10^{+3}$ |
| 209 | Protactinium-233 | $1 \times 10^{+2}$ | $1 \times 10^{+7}$ |
| 210 | Radium-223 ¹ | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 211 | Radium-224 ¹ | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 212 | Radium-225 | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 213 | Radium-226 ¹ | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 214 | Radium-227 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 215 | Radium-228 ¹ | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 216 | Radon-220 ¹ | $1 \times 10^{+4}$ | $1 \times 10^{+7}$ |
| 217 | Radon-222 ¹ | $1 \times 10^{+1}$ | $1 \times 10^{+8}$ |
| 218 | Rhenium-186 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 219 | Rhenium-188 | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 220 | Rhodium-103m | $1 \times 10^{+4}$ | $1 \times 10^{+8}$ |
| 221 | Rhodium-105 | $1 \times 10^{+2}$ | $1 \times 10^{+7}$ |
| 222 | Rubidium-81 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 223 | Rubidium-86 | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 224 | Ruthenium-103 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 225 | Ruthenium-105 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 226 | Ruthenium-106 ¹ | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 227 | Ruthenium-97 | $1 \times 10^{+2}$ | $1 \times 10^{+7}$ |
| 228 | Samarium-147 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 229 | Samarium-151 | $1 \times 10^{+4}$ | $1 \times 10^{+8}$ |
| 230 | Samarium-153 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 231 | Scandium-44 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 232 | Scandium-48 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 233 | Scandium-46 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 234 | Scandium-47 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |

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| Item | Column 1 Radionuclide | Column 2 Concentration (Bq/g) | Column 3 Activity (Bq) |
|-------------|----------------------------------|--|-----------------------------------|
| 235 | Selenium-72 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 236 | Selenium-73 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 237 | Selenium-75 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 238 | Silicon-31 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 239 | Silicon-32 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 240 | Silver-105 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 241 | Silver-108m | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 242 | Silver-110m | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 243 | Silver-111 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 244 | Sodium-22 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 245 | Sodium-24 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 246 | Strontium-82 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 247 | Strontium-85 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 248 | Strontium-85m | $1 \times 10^{+2}$ | $1 \times 10^{+7}$ |
| 249 | Strontium-87m | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 250 | Strontium-89 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 251 | Strontium-90 ^l | $1 \times 10^{+2}$ | $1 \times 10^{+4}$ |
| 252 | Strontium-91 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 253 | Strontium-92 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 254 | Sulphur-35 | $1 \times 10^{+5}$ | $1 \times 10^{+8}$ |
| 255 | Tantalum-182 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 256 | Technetium-95m | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 257 | Technetium-96 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 258 | Technetium-96m | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |
| 259 | Technetium-97 | $1 \times 10^{+3}$ | $1 \times 10^{+8}$ |
| 260 | Technetium-97m | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |
| 261 | Technetium-99 | $1 \times 10^{+4}$ | $1 \times 10^{+7}$ |
| 262 | Technetium-99m | $1 \times 10^{+2}$ | $1 \times 10^{+7}$ |
| 263 | Tellurium-123m | $1 \times 10^{+2}$ | $1 \times 10^{+7}$ |
| 264 | Tellurium-125m | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |

| Item | Column 1 Radionuclide | Column 2 Concentration (Bq/g) | Column 3 Activity (Bq) |
|-------------|--------------------------------------|--|-----------------------------------|
| 265 | Tellurium-127 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 266 | Tellurium-127m | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |
| 267 | Tellurium-129 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 268 | Tellurium-129m | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 269 | Tellurium-131 | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 270 | Tellurium-131m | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 271 | Tellurium-132 | $1 \times 10^{+2}$ | $1 \times 10^{+7}$ |
| 272 | Tellurium-133 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 273 | Tellurium-133m | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 274 | Tellurium-134 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 275 | Terbium-160 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 276 | Thallium-200 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 277 | Thallium-201 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 278 | Thallium-202 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 279 | Thallium-204 | $1 \times 10^{+4}$ | $1 \times 10^{+4}$ |
| 280 | Thorium-226 ¹ | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |
| 281 | Thorium-227 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 282 | Thorium-228 ¹ | 1×10^0 | $1 \times 10^{+4}$ |
| 283 | Thorium-229 ¹ | 1×10^0 | $1 \times 10^{+3}$ |
| 284 | Thorium-230 | 1×10^0 | $1 \times 10^{+4}$ |
| 285 | Thorium-231 | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |
| 286 | Thorium-234 ¹ | $1 \times 10^{+3}$ | $1 \times 10^{+5}$ |
| 287 | Thorium-nat including thorium-232 | 1×10^0 | $1 \times 10^{+3}$ |
| 288 | Thulium-170 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 289 | Thulium-171 | $1 \times 10^{+4}$ | $1 \times 10^{+8}$ |
| 290 | Tin-113 | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |
| 291 | Tin-117m | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 292 | Tin-121 | $1 \times 10^{+5}$ | $1 \times 10^{+7}$ |
| 293 | Tin-125 | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |

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| Item | Column 1 Radionuclide | Column 2 Concentration (Bq/g) | Column 3 Activity (Bq) |
|-------------|----------------------------------|--|-----------------------------------|
| 294 | Tungsten-181 | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |
| 295 | Tungsten-185 | $1 \times 10^{+4}$ | $1 \times 10^{+7}$ |
| 296 | Tungsten-187 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 297 | Tungsten-188 | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 298 | Uranium-240 ¹ | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 299 | Uranium-230 ¹ | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 300 | Uranium-231 | $1 \times 10^{+2}$ | $1 \times 10^{+7}$ |
| 301 | Uranium-232 ¹ | 1×10^0 | $1 \times 10^{+3}$ |
| 302 | Uranium-233 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 303 | Uranium-234 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 304 | Uranium-235 ¹ | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 305 | Uranium-236 | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 306 | Uranium-237 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 307 | Uranium-238 ¹ | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |
| 308 | Uranium-239 | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 309 | Uranium-240 | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |
| 310 | Uranium-nat | 1×10^0 | $1 \times 10^{+3}$ |
| 311 | Vanadium-48 | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 312 | Xenon-131m | $1 \times 10^{+4}$ | $1 \times 10^{+4}$ |
| 313 | Xenon-133 | $1 \times 10^{+3}$ | $1 \times 10^{+4}$ |
| 314 | Xenon-135 | $1 \times 10^{+3}$ | $1 \times 10^{+10}$ |
| 315 | Ytterbium-169 | $1 \times 10^{+2}$ | $1 \times 10^{+7}$ |
| 316 | Ytterbium-175 | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |
| 317 | Yttrium-88 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 318 | Yttrium-90 | $1 \times 10^{+3}$ | $1 \times 10^{+5}$ |
| 319 | Yttrium-91 | $1 \times 10^{+3}$ | $1 \times 10^{+6}$ |
| 320 | Yttrium-91m | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |
| 321 | Yttrium-92 | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 322 | Yttrium-93 | $1 \times 10^{+2}$ | $1 \times 10^{+5}$ |
| 323 | Zinc-69m | $1 \times 10^{+2}$ | $1 \times 10^{+6}$ |

| Item | Column 1 Radionuclide | Column 2 Concentration (Bq/g) | Column 3 Activity (Bq) |
|-------------|---|--|-----------------------------------|
| 324 | Zinc-65 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 325 | Zinc-69 | $1 \times 10^{+4}$ | $1 \times 10^{+6}$ |
| 326 | Zirconium-93 ¹ | $1 \times 10^{+3}$ | $1 \times 10^{+7}$ |
| 327 | Zirconium-95 | $1 \times 10^{+1}$ | $1 \times 10^{+6}$ |
| 328 | Zirconium-97 ¹ | $1 \times 10^{+1}$ | $1 \times 10^{+5}$ |
| 329 | alpha-emitting radionuclide not mentioned in another item | 1×10^0 | $1 \times 10^{+3}$ |
| 330 | radionuclide that is not alpha-emitting and not mentioned in another item | $1 \times 10^{+1}$ | $1 \times 10^{+4}$ |

The superscript '1' immediately following an item in column 1 indicates that the item's concentration and activity are the concentration and activity of the parent radionuclide and its progeny when in secular equilibrium.

Schedule 1A Security categorisation of a radiation source or an aggregation of radiation sources

section 7A

Part 1 Security categories

| Security Category | Activity ratio |
|--------------------------|--|
| 1 | Greater than 1000 |
| 2 | Less than 1000 but greater than or equal to 10 |
| 3 | Less than 10 but greater than or equal to 1 |
| 4 | Less than 1 but greater than or equal to 0.01 |
| 5 | Less than 0.01 |

Part 2 Radionuclide activity values

| Item | Column 1 Radionuclide | Column 2 Activity Value (GBq) |
|-------------|----------------------------------|--|
| 1 | Americium-241 | 60 |
| 2 | Americium-241/Beryllium | 60 |
| 3 | Cadmium-109 | 2×10^4 |
| 4 | Caesium-137 | 100 |
| 5 | Californium-252 | 20 |
| 6 | Cobalt-57 | 700 |
| 7 | Cobalt-60 | 30 |
| 8 | Curium-244 | 50 |
| 9 | Gadolinium-153 | 1×10^3 |

| Item | Column 1 Radionuclide | Column 2 Activity Value (GBq) |
|-------------|----------------------------------|--|
| 10 | Germanium-68 | 700 |
| 11 | Gold-198 | 200 |
| 12 | Iodine-125 | 200 |
| 13 | Iodine-131 | 200 |
| 14 | Iridium-192 | 80 |
| 15 | Iron-55 | 8×10^5 |
| 16 | Krypton-85 | 3×10^4 |
| 17 | Molybdenum-99 | 300 |
| 18 | Nickel-63 | 6×10^4 |
| 19 | Palladium-103 | 9×10^4 |
| 20 | Phosphorus-32 | 1×10^4 |
| 21 | Plutonium-238 | 60 |
| 22 | Plutonium-239/Beryllium | 60 |
| 23 | Polonium-210 | 60 |
| 24 | Promethium-147 | 4×10^4 |
| 25 | Radium-226 | 40 |
| 26 | Ruthenium-106 (Rhodium-106) | 300 |
| 27 | Selenium-75 | 200 |
| 28 | Strontium-90 (Yttrium-90) | 1×10^3 |
| 29 | Technetium-99m | 700 |
| 30 | Thallium-204 | 2×10^4 |
| 31 | Thulium | 2×10^4 |
| 32 | Tritium (H-3) | 2×10^6 |
| 33 | Ytterbium-169 | 300 |
| 34 | All other radioisotopes | 20 |

Schedule 2 Disposal of radioactive material—radionuclide concentrations

sections 10 and 11

| Item | Column 1 Radionuclide | Column 2 Release to air concentration (Bq/m ³) | Column 3 Release to water concentration (Bq/m ³) | Column 4 Release to sewerage system concentration (Bq/m ³) |
|------|-----------------------------|---|--|---|
| 1 | Actinium-225 | 3.77×10^{-3} | $2.85 \times 10^{+4}$ | $5.71 \times 10^{+4}$ |
| 2 | Actinium-227 | 4.73×10^{-5} | $6.23 \times 10^{+2}$ | $1.25 \times 10^{+3}$ |
| 3 | Actinium-228 | 1.03×10^0 | $1.59 \times 10^{+6}$ | $3.19 \times 10^{+6}$ |
| 4 | Americium-241 | 7.64×10^{-4} | $3.42 \times 10^{+3}$ | $6.85 \times 10^{+3}$ |
| 5 | Americium-242 | 1.86×10^0 | $2.28 \times 10^{+6}$ | $4.57 \times 10^{+6}$ |
| 6 | Americium-242m ¹ | 8.51×10^{-4} | $3.60 \times 10^{+3}$ | $7.21 \times 10^{+3}$ |
| 7 | Americium-243 ¹ | 7.64×10^{-4} | $3.42 \times 10^{+3}$ | $6.85 \times 10^{+3}$ |
| 8 | Antimony-122 | $2.48 \times 10^{+1}$ | $4.03 \times 10^{+5}$ | $8.06 \times 10^{+5}$ |
| 9 | Antimony-124 | 4.88×10^0 | $2.74 \times 10^{+5}$ | $5.48 \times 10^{+5}$ |
| 10 | Antimony-125 | 6.62×10^0 | $6.23 \times 10^{+5}$ | $1.25 \times 10^{+6}$ |
| 11 | Argon-37 | $3.34 \times 10^{+8}$ | - | - |
| 12 | Argon-41 | $2.58 \times 10^{+2}$ | - | - |
| 13 | Arsenic-73 | $3.20 \times 10^{+1}$ | $2.63 \times 10^{+6}$ | $5.27 \times 10^{+6}$ |
| 14 | Arsenic-74 | $1.42 \times 10^{+1}$ | $5.27 \times 10^{+5}$ | $1.05 \times 10^{+6}$ |
| 15 | Arsenic-76 | $3.24 \times 10^{+1}$ | $4.28 \times 10^{+5}$ | $8.56 \times 10^{+5}$ |
| 16 | Arsenic-77 | $7.09 \times 10^{+1}$ | $1.71 \times 10^{+6}$ | $3.42 \times 10^{+6}$ |
| 17 | Astatine-211 | 2.71×10^{-1} | $6.23 \times 10^{+4}$ | $1.25 \times 10^{+5}$ |
| 18 | Barium-131 | $8.51 \times 10^{+1}$ | $1.52 \times 10^{+6}$ | $3.04 \times 10^{+6}$ |
| 19 | Barium-133 | $1.65 \times 10^{+1}$ | $6.85 \times 10^{+5}$ | $1.37 \times 10^{+6}$ |
| 20 | Barium-140 ¹ | $1.86 \times 10^{+1}$ | $2.74 \times 10^{+5}$ | $5.48 \times 10^{+5}$ |
| 21 | Berkelium-249 | 1.99×10^{-1} | $7.06 \times 10^{+5}$ | $1.41 \times 10^{+6}$ |

| Item | Column 1 Radionuclide | Column 2 Release to air concentration (Bq/m³) | Column 3 Release to water concentration (Bq/m³) | Column 4 Release to sewerage system concentration (Bq/m³) |
|-------------|----------------------------------|---|---|---|
| 22 | Beryllium-7 | $5.73 \times 10^{+2}$ | $2.45 \times 10^{+7}$ | $4.89 \times 10^{+7}$ |
| 23 | Bismuth-206 | $1.42 \times 10^{+1}$ | $3.60 \times 10^{+5}$ | $7.21 \times 10^{+5}$ |
| 24 | Bismuth-207 | 5.73×10^0 | $5.27 \times 10^{+5}$ | $1.05 \times 10^{+6}$ |
| 25 | Bismuth-210 | 3.55×10^{-1} | $5.27 \times 10^{+5}$ | $1.05 \times 10^{+6}$ |
| 26 | Bismuth-212 ¹ | 7.64×10^{-1} | $2.63 \times 10^{+6}$ | $5.27 \times 10^{+6}$ |
| 27 | Bismuth-213 | 7.26×10^{-1} | $3.42 \times 10^{+6}$ | $6.85 \times 10^{+6}$ |
| 28 | Bromine-75 | $3.50 \times 10^{+2}$ | $8.67 \times 10^{+6}$ | $1.73 \times 10^{+7}$ |
| 29 | Bromine-76 | $5.13 \times 10^{+1}$ | $1.49 \times 10^{+6}$ | $2.98 \times 10^{+6}$ |
| 30 | Bromine-82 | $3.38 \times 10^{+1}$ | $1.27 \times 10^{+6}$ | $2.54 \times 10^{+6}$ |
| 31 | Cadmium-109 | 3.10×10^0 | $3.42 \times 10^{+5}$ | $6.85 \times 10^{+5}$ |
| 32 | Cadmium-115 | $2.29 \times 10^{+1}$ | $4.89 \times 10^{+5}$ | $9.78 \times 10^{+5}$ |
| 33 | Cadmium-115m | 4.08×10^0 | $2.08 \times 10^{+5}$ | $4.15 \times 10^{+5}$ |
| 34 | Caesium-129 | $3.68 \times 10^{+2}$ | $1.14 \times 10^{+7}$ | $2.28 \times 10^{+7}$ |
| 35 | Caesium-131 | $6.62 \times 10^{+2}$ | $1.18 \times 10^{+7}$ | $2.36 \times 10^{+7}$ |
| 36 | Caesium-132 | $7.84 \times 10^{+1}$ | $1.37 \times 10^{+6}$ | $2.74 \times 10^{+6}$ |
| 37 | Caesium-134 | 3.10×10^0 | $3.60 \times 10^{+4}$ | $7.21 \times 10^{+4}$ |
| 38 | Caesium-134m | $1.15 \times 10^{+3}$ | $3.42 \times 10^{+7}$ | $6.85 \times 10^{+7}$ |
| 39 | Caesium-135 | $3.01 \times 10^{+1}$ | $3.42 \times 10^{+5}$ | $6.85 \times 10^{+5}$ |
| 40 | Caesium-136 | $1.57 \times 10^{+1}$ | $2.28 \times 10^{+5}$ | $4.57 \times 10^{+5}$ |
| 41 | Caesium-137 ¹ | 4.44×10^0 | $5.27 \times 10^{+4}$ | $1.05 \times 10^{+5}$ |
| 42 | Caesium-138 | $6.47 \times 10^{+2}$ | $7.44 \times 10^{+6}$ | $1.49 \times 10^{+7}$ |
| 43 | Calcium-45 | $1.10 \times 10^{+1}$ | $9.01 \times 10^{+5}$ | $1.80 \times 10^{+6}$ |
| 44 | Calcium-47 | $1.42 \times 10^{+1}$ | $4.28 \times 10^{+5}$ | $8.56 \times 10^{+5}$ |
| 45 | Californium-246 | 7.09×10^{-2} | $2.08 \times 10^{+5}$ | $4.15 \times 10^{+5}$ |
| 46 | Californium-248 | 3.63×10^{-3} | $2.45 \times 10^{+4}$ | $4.89 \times 10^{+4}$ |
| 47 | Californium-249 | 4.51×10^{-4} | $1.96 \times 10^{+3}$ | $3.91 \times 10^{+3}$ |
| 48 | Californium-250 | 9.31×10^{-4} | $4.28 \times 10^{+3}$ | $8.56 \times 10^{+3}$ |
| 49 | Californium-251 | 4.44×10^{-4} | $1.90 \times 10^{+3}$ | $3.81 \times 10^{+3}$ |

Schedule 2

| Item | Column 1 Radionuclide | Column 2 Release to air concentration (Bq/m³) | Column 3 Release to water concentration (Bq/m³) | Column 4 Release to sewerage system concentration (Bq/m³) |
|-------------|----------------------------------|---|---|---|
| 50 | Californium-252 | 1.65×10^{-3} | $7.61 \times 10^{+3}$ | $1.52 \times 10^{+4}$ |
| 51 | Californium-253 | 2.48×10^{-2} | $4.89 \times 10^{+5}$ | $9.78 \times 10^{+5}$ |
| 52 | Californium-254 | 8.05×10^{-4} | $1.71 \times 10^{+3}$ | $3.42 \times 10^{+3}$ |
| 53 | Carbon-11 | $9.31 \times 10^{+3}$ | $2.85 \times 10^{+7}$ | $5.71 \times 10^{+7}$ |
| 54 | Carbon-14 | $5.13 \times 10^{+1}$ | $1.18 \times 10^{+6}$ | $2.36 \times 10^{+6}$ |
| 55 | Cerium-139 | $1.65 \times 10^{+1}$ | $2.63 \times 10^{+6}$ | $5.27 \times 10^{+6}$ |
| 56 | Cerium-141 | 8.27×10^0 | $9.65 \times 10^{+5}$ | $1.93 \times 10^{+6}$ |
| 57 | Cerium-143 | $2.98 \times 10^{+1}$ | $6.23 \times 10^{+5}$ | $1.25 \times 10^{+6}$ |
| 58 | Cerium-144 ¹ | 6.08×10^{-1} | $1.32 \times 10^{+5}$ | $2.63 \times 10^{+5}$ |
| 59 | Chlorine-36 | 4.32×10^0 | $7.36 \times 10^{+5}$ | $1.47 \times 10^{+6}$ |
| 60 | Chlorine-38 | $4.08 \times 10^{+2}$ | $5.71 \times 10^{+6}$ | $1.14 \times 10^{+7}$ |
| 61 | Chromium-51 | $8.27 \times 10^{+2}$ | $1.80 \times 10^{+7}$ | $3.60 \times 10^{+7}$ |
| 62 | Cobalt-55 | $3.59 \times 10^{+1}$ | $6.23 \times 10^{+5}$ | $1.25 \times 10^{+6}$ |
| 63 | Cobalt-5 | 4.73×10^0 | $2.74 \times 10^{+5}$ | $5.48 \times 10^{+5}$ |
| 64 | Cobalt-57 | $3.17 \times 10^{+1}$ | $3.26 \times 10^{+6}$ | $6.52 \times 10^{+6}$ |
| 65 | Cobalt-58 | $1.49 \times 10^{+1}$ | $9.26 \times 10^{+5}$ | $1.85 \times 10^{+6}$ |
| 66 | Cobalt-58m | $1.75 \times 10^{+3}$ | $2.85 \times 10^{+7}$ | $5.71 \times 10^{+7}$ |
| 67 | Cobalt-60 | 1.03×10^0 | $2.01 \times 10^{+5}$ | $4.03 \times 10^{+5}$ |
| 68 | Cobalt-60m | $2.29 \times 10^{+4}$ | $4.03 \times 10^{+8}$ | $8.06 \times 10^{+8}$ |
| 69 | Cobalt-61 | $3.97 \times 10^{+2}$ | $9.26 \times 10^{+6}$ | $1.85 \times 10^{+7}$ |
| 70 | Cobalt-62m | $8.05 \times 10^{+2}$ | $1.46 \times 10^{+7}$ | $2.91 \times 10^{+7}$ |
| 71 | Copper-64 | $1.99 \times 10^{+2}$ | $5.71 \times 10^{+6}$ | $1.14 \times 10^{+7}$ |
| 72 | Copper-67 | $5.13 \times 10^{+1}$ | $2.01 \times 10^{+6}$ | $4.03 \times 10^{+6}$ |
| 73 | Curium-242 | 6.20×10^{-3} | $5.71 \times 10^{+4}$ | $1.14 \times 10^{+5}$ |
| 74 | Curium-243 | 1.03×10^{-3} | $4.57 \times 10^{+3}$ | $9.13 \times 10^{+3}$ |
| 75 | Curium-244 | 1.19×10^{-3} | $5.71 \times 10^{+3}$ | $1.14 \times 10^{+4}$ |
| 76 | Curium-245 | 7.44×10^{-4} | $3.26 \times 10^{+3}$ | $6.52 \times 10^{+3}$ |
| 77 | Curium-246 | 7.44×10^{-4} | $3.26 \times 10^{+3}$ | $6.52 \times 10^{+3}$ |

| Item | Column 1 Radionuclide | Column 2 Release to air concentration (Bq/m³) | Column 3 Release to water concentration (Bq/m³) | Column 4 Release to sewerage system concentration (Bq/m³) |
|-------------|----------------------------------|---|---|---|
| 78 | Curium-247 | 8.27×10^{-4} | $3.60 \times 10^{+3}$ | $7.21 \times 10^{+3}$ |
| 79 | Curium-248 | 2.13×10^{-4} | $8.90 \times 10^{+2}$ | $1.78 \times 10^{+3}$ |
| 80 | Dysprosium-165 | $3.42 \times 10^{+2}$ | $6.23 \times 10^{+6}$ | $1.25 \times 10^{+7}$ |
| 81 | Dysprosium-166 | $1.65 \times 10^{+1}$ | $4.28 \times 10^{+5}$ | $8.56 \times 10^{+5}$ |
| 82 | Einsteinium-253 | 1.19×10^{-2} | $1.12 \times 10^{+5}$ | $2.25 \times 10^{+5}$ |
| 83 | Einsteinium-254 | 3.72×10^{-3} | $2.45 \times 10^{+4}$ | $4.89 \times 10^{+4}$ |
| 84 | Einsteinium-254m | 6.77×10^{-2} | $1.63 \times 10^{+5}$ | $3.26 \times 10^{+5}$ |
| 85 | Erbium-161 | $3.50 \times 10^{+2}$ | $8.56 \times 10^{+6}$ | $1.71 \times 10^{+7}$ |
| 86 | Erbium-169 | $3.04 \times 10^{+1}$ | $1.85 \times 10^{+6}$ | $3.70 \times 10^{+6}$ |
| 87 | Erbium-171 | $9.93 \times 10^{+1}$ | $1.90 \times 10^{+6}$ | $3.81 \times 10^{+6}$ |
| 88 | Europium-152 | 7.64×10^{-1} | $4.89 \times 10^{+5}$ | $9.78 \times 10^{+5}$ |
| 89 | Europium-152m | $9.31 \times 10^{+1}$ | $1.37 \times 10^{+6}$ | $2.74 \times 10^{+6}$ |
| 90 | Europium-154 | 5.96×10^{-1} | $3.42 \times 10^{+5}$ | $6.85 \times 10^{+5}$ |
| 91 | Europium-155 | 4.58×10^0 | $2.14 \times 10^{+6}$ | $4.28 \times 10^{+6}$ |
| 92 | Fermium-254 | 3.87×10^{-1} | $1.56 \times 10^{+6}$ | $3.11 \times 10^{+6}$ |
| 93 | Fermium-255 | 1.15×10^{-1} | $2.74 \times 10^{+5}$ | $5.48 \times 10^{+5}$ |
| 94 | Fluorine-18 | $3.20 \times 10^{+2}$ | $1.4 \times 10^{+7}$ | $2.8 \times 10^{+7}$ |
| 95 | Gadolinium-153 | $1.19 \times 10^{+1}$ | $2.54 \times 10^{+6}$ | $5.07 \times 10^{+6}$ |
| 96 | Gadolinium-159 | $7.64 \times 10^{+1}$ | $1.40 \times 10^{+6}$ | $2.80 \times 10^{+6}$ |
| 97 | Gallium-67 | $1.06 \times 10^{+2}$ | $3.60 \times 10^{+6}$ | $7.21 \times 10^{+6}$ |
| 98 | Gallium-72 | $3.55 \times 10^{+1}$ | $6.23 \times 10^{+5}$ | $1.25 \times 10^{+6}$ |
| 99 | Germanium-68 | 2.29×10^0 | $5.27 \times 10^{+5}$ | $1.05 \times 10^{+6}$ |
| 100 | Germanium-71 | $2.71 \times 10^{+3}$ | $5.71 \times 10^{+7}$ | $1.14 \times 10^{+8}$ |
| 101 | Gold-198 | $2.71 \times 10^{+1}$ | $6.85 \times 10^{+5}$ | $1.37 \times 10^{+6}$ |
| 102 | Gold-199 | $3.92 \times 10^{+1}$ | $1.56 \times 10^{+6}$ | $3.11 \times 10^{+6}$ |
| 103 | Hafnium-181 | 6.34×10^0 | $6.23 \times 10^{+5}$ | $1.25 \times 10^{+6}$ |
| 104 | Holmium-166 | $3.59 \times 10^{+1}$ | $4.89 \times 10^{+5}$ | $9.78 \times 10^{+5}$ |
| 105 | Holmium-166m | 2.71×10^{-1} | $3.42 \times 10^{+5}$ | $6.84 \times 10^{+5}$ |

Schedule 2

| Item | Column 1 Radionuclide | Column 2 Release to air concentration (Bq/m³) | Column 3 Release to water concentration (Bq/m³) | Column 4 Release to sewerage system concentration (Bq/m³) |
|-------------|----------------------------------|---|---|---|
| 106 | Hydrogen-3 | 1.65 x 10 ⁺⁷ | 3.81 x 10 ⁺⁷ | 7.61 x 10 ⁺⁷ |
| 107 | Indium-111 | 9.61 x 10 ⁺¹ | 2.36 x 10 ⁺⁶ | 4.72 x 10 ⁺⁶ |
| 108 | Indium-113m | 9.31 x 10 ⁺² | 2.45 x 10 ⁺⁷ | 4.89 x 10 ⁺⁷ |
| 109 | Indium-114m | 2.71 x 10 ⁰ | 1.67 x 10 ⁺⁵ | 3.34 x 10 ⁺⁵ |
| 110 | Indium-115m | 3.42 x 10 ⁺² | 7.96 x 10 ⁺⁶ | 1.59 x 10 ⁺⁷ |
| 111 | Iodine-123 | 2.71 x 10 ⁺² | 3.26 x 10 ⁺⁶ | 6.52 x 10 ⁺⁶ |
| 112 | Iodine-124 | 4.73 x 10 ⁰ | 5.27 x 10 ⁺⁴ | 1.05 x 10 ⁺⁵ |
| 113 | Iodine-125 | 4.08 x 10 ⁰ | 4.57 x 10 ⁺⁴ | 9.13 x 10 ⁺⁴ |
| 114 | Iodine-126 | 2.13 x 10 ⁰ | 2.36 x 10 ⁺⁴ | 4.72 x 10 ⁺⁴ |
| 115 | Iodine-129 | 5.84 x 10 ⁻¹ | 6.23 x 10 ⁺³ | 1.25 x 10 ⁺⁴ |
| 116 | Iodine-130 | 3.10 x 10 ⁺¹ | 3.42 x 10 ⁺⁵ | 6.85 x 10 ⁺⁵ |
| 117 | Iodine-131 | 2.71 x 10 ⁰ | 3.11 x 10 ⁺⁴ | 6.23 x 10 ⁺⁴ |
| 118 | Iodine-132 | 1.49 x 10 ⁺² | 2.36 x 10 ⁺⁶ | 4.72 x 10 ⁺⁶ |
| 119 | Iodine-133 | 1.42 x 10 ⁺¹ | 1.59 x 10 ⁺⁵ | 3.19 x 10 ⁺⁵ |
| 120 | Iodine-134 | 3.77 x 10 ⁺² | 6.23 x 10 ⁺⁶ | 1.25 x 10 ⁺⁷ |
| 121 | Iodine-135 | 6.47 x 10 ⁺¹ | 7.36 x 10 ⁺⁵ | 1.47 x 10 ⁺⁶ |
| 122 | Iridium-190 | 1.19 x 10 ⁺¹ | 5.71 x 10 ⁺⁵ | 1.14 x 10 ⁺⁶ |
| 123 | Iridium-192 | 4.80 x 10 ⁰ | 4.89 x 10 ⁺⁵ | 9.78 x 10 ⁺⁵ |
| 124 | Iridium-194 | 3.97 x 10 ⁺¹ | 5.27 x 10 ⁺⁵ | 1.05 x 10 ⁺⁶ |
| 125 | Iron-52 | 3.13 x 10 ⁺¹ | 4.89 x 10 ⁺⁵ | 9.78 x 10 ⁺⁵ |
| 126 | Iron-55 | 3.24 x 10 ⁺¹ | 2.08 x 10 ⁺⁶ | 4.15 x 10 ⁺⁶ |
| 127 | Iron-59 | 8.51 x 10 ⁰ | 3.81 x 10 ⁺⁵ | 7.61 x 10 ⁺⁵ |
| 128 | Krypton-74 | - | - | - |
| 129 | Krypton-76 | 8.56 x 10 ⁺² | - | - |
| 130 | Krypton-77 | 3.51 x 10 ⁺² | - | - |
| 131 | Krypton-79 | 1.41 x 10 ⁺³ | - | - |
| 132 | Krypton-81 | 6.52 x 10 ⁺⁴ | - | - |
| 133 | Krypton-83m | 6.52 x 10 ⁺⁶ | - | - |

| Item | Column 1 Radionuclide | Column 2 Release to air concentration (Bq/m³) | Column 3 Release to water concentration (Bq/m³) | Column 4 Release to sewerage system concentration (Bq/m³) |
|-------------|----------------------------------|---|---|---|
| 134 | Krypton-85 | 6.23 x 10 ⁺⁴ | - | - |
| 135 | Krypton-85m | 2.32 x 10 ⁺³ | - | - |
| 136 | Krypton-87 | 4.03 x 10 ⁺² | - | - |
| 137 | Krypton-88 | 1.63 x 10 ⁺² | - | - |
| 138 | Lanthanum-140 | 1.99 x 10 ⁺¹ | 3.42 x 10 ⁺⁵ | 6.85 x 10 ⁺⁵ |
| 139 | Lead-203 | 1.86 x 10 ⁺² | 2.85 x 10 ⁺⁶ | 5.71 x 10 ⁺⁶ |
| 140 | Lead-210 ¹ | 2.71 x 10 ⁻² | 1.01 x 10 ⁺³ | 2.01 x 10 ⁺³ |
| 141 | Lead-212 ¹ | 9.02 x 10 ⁻¹ | 1.16 x 10 ⁺⁵ | 2.32 x 10 ⁺⁵ |
| 142 | Lutetium-177 | 2.71 x 10 ⁺¹ | 1.29 x 10 ⁺⁶ | 2.58 x 10 ⁺⁶ |
| 143 | Magnesium-28 | 1.75 x 10 ⁺¹ | 3.11 x 10 ⁺⁵ | 6.23 x 10 ⁺⁵ |
| 144 | Manganese-51 | 4.38 x 10 ⁺² | 7.36 x 10 ⁺⁶ | 1.47 x 10 ⁺⁷ |
| 145 | Manganese-52 | 1.65 x 10 ⁺¹ | 3.81 x 10 ⁺⁵ | 7.61 x 10 ⁺⁵ |
| 146 | Manganese-52m | 5.96 x 10 ⁺² | 9.93 x 10 ⁺⁶ | 1.99 x 10 ⁺⁷ |
| 147 | Manganese-53 | 5.73 x 10 ⁺² | 2.28 x 10 ⁺⁷ | 4.57 x 10 ⁺⁷ |
| 148 | Manganese-54 | 1.99 x 10 ⁺¹ | 9.65 x 10 ⁺⁵ | 1.93 x 10 ⁺⁶ |
| 149 | Manganese-56 | 1.49 x 10 ⁺² | 2.74 x 10 ⁺⁶ | 5.48 x 10 ⁺⁶ |
| 150 | Mercury-195m | 4.58 x 10 ⁺¹ | 1.22 x 10 ⁺⁶ | 2.45 x 10 ⁺⁶ |
| 151 | Mercury-197 | 1.03 x 10 ⁺² | 2.98 x 10 ⁺⁶ | 5.96 x 10 ⁺⁶ |
| 152 | Mercury-197m | 4.51 x 10 ⁺¹ | 1.46 x 10 ⁺⁶ | 2.91 x 10 ⁺⁶ |
| 153 | Mercury-203 | 1.29 x 10 ⁺¹ | 3.60 x 10 ⁺⁵ | 7.21 x 10 ⁺⁵ |
| 154 | Molybdenum-101 | 6.62 x 10 ⁺² | 1.63 x 10 ⁺⁷ | 3.26 x 10 ⁺⁷ |
| 155 | Molybdenum-90 | 5.32 x 10 ⁺¹ | 1.10 x 10 ⁺⁶ | 2.21 x 10 ⁺⁶ |
| 156 | Molybdenum-93 | 1.35 x 10 ⁺¹ | 2.63 x 10 ⁺⁵ | 5.27 x 10 ⁺⁵ |
| 157 | Molybdenum-99 | 2.71 x 10 ⁺¹ | 5.71 x 10 ⁺⁵ | 1.14 x 10 ⁺⁶ |
| 158 | Neodymium-147 | 1.29 x 10 ⁺¹ | 6.23 x 10 ⁺⁵ | 1.25 x 10 ⁺⁶ |
| 159 | Neodymium-149 | 2.29 x 10 ⁺² | 5.71 x 10 ⁺⁶ | 1.14 x 10 ⁺⁷ |
| 160 | Neptunium-237 ¹ | 1.42 x 10 ⁻³ | 6.23 x 10 ⁺³ | 1.25 x 10 ⁺⁴ |
| 161 | Neptunium-239 | 2.71 x 10 ⁺¹ | 8.56 x 10 ⁺⁵ | 1.71 x 10 ⁺⁶ |

Schedule 2

| Item | Column 1 Radionuclide | Column 2 Release to air concentration (Bq/m³) | Column 3 Release to water concentration (Bq/m³) | Column 4 Release to sewerage system concentration (Bq/m³) |
|-------------|----------------------------------|---|---|---|
| 162 | Neptunium-240 | 2.29 x 10 ⁺² | 8.35 x 10 ⁺⁶ | 1.67 x 10 ⁺⁷ |
| 163 | Nickel-59 | 1.35 x 10 ⁺² | 1.09 x 10 ⁺⁷ | 2.17 x 10 ⁺⁷ |
| 164 | Nickel-63 | 5.73 x 10 ⁺¹ | 4.57 x 10 ⁺⁶ | 9.13 x 10 ⁺⁶ |
| 165 | Nickel-65 | 2.29 x 10 ⁺² | 3.81 x 10 ⁺⁶ | 7.61 x 10 ⁺⁶ |
| 166 | Niobium-93m | 3.46 x 10 ⁺¹ | 5.71 x 10 ⁺⁶ | 1.14 x 10 ⁺⁷ |
| 167 | Niobium-94 | 6.62 x 10 ⁻¹ | 4.03 x 10 ⁺⁵ | 8.06 x 10 ⁺⁵ |
| 168 | Niobium-95 | 1.86 x 10 ⁺¹ | 1.18 x 10 ⁺⁶ | 2.36 x 10 ⁺⁶ |
| 169 | Niobium-97 | 4.14 x 10 ⁺² | 1.01 x 10 ⁺⁷ | 2.01 x 10 ⁺⁷ |
| 170 | Niobium-98 | 3.01 x 10 ⁺² | 6.23 x 10 ⁺⁶ | 1.25 x 10 ⁺⁷ |
| 171 | Nitrogen-13 ¹ | - | - | - |
| 172 | Osmium-185 | 1.99 x 10 ⁺¹ | 1.34 x 10 ⁺⁶ | 2.69 x 10 ⁺⁶ |
| 173 | Osmium-191 | 1.65 x 10 ⁺¹ | 1.20 x 10 ⁺⁶ | 2.40 x 10 ⁺⁶ |
| 174 | Osmium-191m | 1.99 x 10 ⁺² | 7.13 x 10 ⁺⁶ | 1.43 x 10 ⁺⁷ |
| 175 | Osmium-193 | 4.38 x 10 ⁺¹ | 8.46 x 10 ⁺⁵ | 1.69 x 10 ⁺⁶ |
| 176 | Oxygen-15 | - | - | - |
| 177 | Palladium-103 | 7.44 x 10 ⁺¹ | 3.60 x 10 ⁺⁶ | 7.21 x 10 ⁺⁶ |
| 178 | Palladium-109 | 5.96 x 10 ⁺¹ | 1.25 x 10 ⁺⁶ | 2.49 x 10 ⁺⁶ |
| 179 | Phosphorus-32 | 9.31 x 10 ⁰ | 2.85 x 10 ⁺⁵ | 5.71 x 10 ⁺⁵ |
| 180 | Phosphorus-33 | 2.13 x 10 ⁺¹ | 2.85 x 10 ⁺⁶ | 5.71 x 10 ⁺⁶ |
| 181 | Platinum-191 | 1.57 x 10 ⁺² | 2.01 x 10 ⁺⁶ | 4.03 x 10 ⁺⁶ |
| 182 | Platinum-193m | 1.42 x 10 ⁺² | 1.52 x 10 ⁺⁶ | 3.04 x 10 ⁺⁶ |
| 183 | Platinum-197 | 1.86 x 10 ⁺² | 1.71 x 10 ⁺⁶ | 3.42 x 10 ⁺⁶ |
| 184 | Platinum-197m | 6.93 x 10 ⁺² | 8.15 x 10 ⁺⁶ | 1.63 x 10 ⁺⁷ |
| 185 | Plutonium-234 | 1.35 x 10 ⁰ | 4.28 x 10 ⁺⁶ | 8.56 x 10 ⁺⁶ |
| 186 | Plutonium-235 | 1.15 x 10 ⁺⁴ | 3.26 x 10 ⁺⁸ | 6.52 x 10 ⁺⁸ |
| 187 | Plutonium-236 | 1.65 x 10 ⁻³ | 7.96 x 10 ⁺³ | 1.59 x 10 ⁺⁴ |
| 188 | Plutonium-237 | 8.27 x 10 ⁺¹ | 6.85 x 10 ⁺⁶ | 1.37 x 10 ⁺⁷ |
| 189 | Plutonium-238 | 6.93 x 10 ⁻⁴ | 2.98 x 10 ⁺³ | 5.96 x 10 ⁺³ |

| Item | Column 1 Radionuclide | Column 2 Release to air concentration (Bq/m³) | Column 3 Release to water concentration (Bq/m³) | Column 4 Release to sewerage system concentration (Bq/m³) |
|-------------|----------------------------------|---|---|---|
| 190 | Plutonium-239 | 6.34×10^{-4} | $2.74 \times 10^{+3}$ | $5.48 \times 10^{+3}$ |
| 191 | Plutonium-240 | 6.34×10^{-4} | $2.74 \times 10^{+3}$ | $5.48 \times 10^{+3}$ |
| 192 | Plutonium-241 | 3.50×10^{-2} | $1.46 \times 10^{+5}$ | $2.91 \times 10^{+5}$ |
| 193 | Plutonium-242 | 6.77×10^{-4} | $2.85 \times 10^{+3}$ | $5.71 \times 10^{+3}$ |
| 194 | Plutonium-243 | $2.71 \times 10^{+2}$ | $8.06 \times 10^{+6}$ | $1.61 \times 10^{+7}$ |
| 195 | Plutonium-244 | 6.77×10^{-4} | $2.85 \times 10^{+3}$ | $5.71 \times 10^{+3}$ |
| 196 | Polonium-203 | $4.88 \times 10^{+2}$ | $1.32 \times 10^{+7}$ | $2.63 \times 10^{+7}$ |
| 197 | Polonium-205 | $3.35 \times 10^{+2}$ | $1.16 \times 10^{+7}$ | $2.32 \times 10^{+7}$ |
| 198 | Polonium-207 | $1.99 \times 10^{+2}$ | $4.89 \times 10^{+6}$ | $9.78 \times 10^{+6}$ |
| 199 | Polonium-210 | 9.93×10^{-3} | $2.85 \times 10^{+3}$ | $5.71 \times 10^{+3}$ |
| 200 | Potassium-40 | 9.93×10^0 | $1.10 \times 10^{+5}$ | $2.21 \times 10^{+5}$ |
| 201 | Potassium-42 | $1.49 \times 10^{+2}$ | $1.59 \times 10^{+6}$ | $3.19 \times 10^{+6}$ |
| 202 | Potassium-43 | $1.15 \times 10^{+2}$ | $2.74 \times 10^{+6}$ | $5.48 \times 10^{+6}$ |
| 203 | Praseodymium-142 | $4.02 \times 10^{+1}$ | $5.27 \times 10^{+5}$ | $1.05 \times 10^{+6}$ |
| 204 | Praseodymium-143 | $1.29 \times 10^{+1}$ | $5.71 \times 10^{+5}$ | $1.14 \times 10^{+6}$ |
| 205 | Promethium-147 | 6.34×10^0 | $2.63 \times 10^{+6}$ | $5.27 \times 10^{+6}$ |
| 206 | Promethium-149 | $3.63 \times 10^{+1}$ | $6.92 \times 10^{+5}$ | $1.38 \times 10^{+6}$ |
| 207 | Protactinium-230 | 4.19×10^{-2} | $7.44 \times 10^{+5}$ | $1.49 \times 10^{+6}$ |
| 208 | Protactinium-231 | 2.29×10^{-4} | $9.65 \times 10^{+2}$ | $1.93 \times 10^{+3}$ |
| 209 | Protactinium-233 | 8.05×10^0 | $7.87 \times 10^{+5}$ | $1.87 \times 10^{+6}$ |
| 210 | Radium-223 ¹ | 4.32×10^{-3} | $6.85 \times 10^{+3}$ | $1.37 \times 10^{+4}$ |
| 211 | Radium-224 ¹ | 1.03×10^{-2} | $1.05 \times 10^{+4}$ | $2.11 \times 10^{+4}$ |
| 212 | Radium-225 | 5.13×10^{-3} | $7.21 \times 10^{+3}$ | $1.44 \times 10^{+4}$ |
| 213 | Radium-226 ¹ | 1.86×10^{-3} | $2.45 \times 10^{+3}$ | $4.89 \times 10^{+3}$ |
| 214 | Radium-227 | $1.06 \times 10^{+2}$ | $8.15 \times 10^{+6}$ | $1.63 \times 10^{+7}$ |
| 215 | Radium-228 ¹ | 1.15×10^{-2} | $1.02 \times 10^{+3}$ | $2.04 \times 10^{+3}$ |
| 216 | Radon-220 ¹ | $2.25 \times 10^{+1}$ | - | - |
| 217 | Radon-222 ¹ | $1.12 \times 10^{+2}$ | - | - |

Schedule 2

| Item | Column 1 | Column 2 | Column 3 | Column 4 |
|-------------|----------------------------|--|--|--|
| | Radionuclide | Release to air concentration (Bq/m³) | Release to water concentration (Bq/m³) | Release to sewerage system concentration (Bq/m³) |
| 218 | Rhenium-186 | 2.48 x 10 ⁺¹ | 4.57 x 10 ⁺⁵ | 9.13 x 10 ⁺⁵ |
| 219 | Rhenium-188 | 4.02 x 10 ⁺¹ | 4.89 x 10 ⁺⁵ | 9.78 x 10 ⁺⁵ |
| 220 | Rhodium-103m | 1.19 x 10 ⁺⁴ | 1.80 x 10 ⁺⁸ | 3.60 x 10 ⁺⁸ |
| 221 | Rhodium-105 | 6.77 x 10 ⁺¹ | 1.85 x 10 ⁺⁶ | 3.70 x 10 ⁺⁶ |
| 222 | Rubidium-81 | 4.38 x 10 ⁺² | 1.27 x 10 ⁺⁷ | 2.54 x 10 ⁺⁷ |
| 223 | Rubidium-86 | 2.29 x 10 ⁺¹ | 2.45 x 10 ⁺⁵ | 4.89 x 10 ⁺⁵ |
| 224 | Ruthenium-10 | 1.06 x 10 ⁺¹ | 9.38 x 10 ⁺⁵ | 1.88 x 10 ⁺⁶ |
| 225 | Ruthenium-105 | 1.19 x 10 ⁺² | 2.63 x 10 ⁺⁶ | 5.27 x 10 ⁺⁶ |
| 226 | Ruthenium-106 ¹ | 4.80 x 10 ⁻¹ | 9.78 x 10 ⁺⁴ | 1.96 x 10 ⁺⁵ |
| 227 | Ruthenium-97 | 1.86 x 10 ⁺² | 4.57 x 10 ⁺⁶ | 9.13 x 10 ⁺⁶ |
| 228 | Samarium-147 | 3.35 x 10 ⁻³ | 1.40 x 10 ⁺⁴ | 2.80 x 10 ⁺⁴ |
| 229 | Samarium-151 | 8.05 x 10 ⁰ | 6.99 x 10 ⁺⁶ | 1.40 x 10 ⁺⁷ |
| 230 | Samarium-153 | 4.38 x 10 ⁺¹ | 9.26 x 10 ⁺⁵ | 1.85 x 10 ⁺⁶ |
| 231 | Scandium-44 | 9.93 x 10 ⁺¹ | 1.96 x 10 ⁺⁶ | 3.91 x 10 ⁺⁶ |
| 232 | Scandium-46 | 4.65 x 10 ⁰ | 4.57 x 10 ⁺⁵ | 9.13 x 10 ⁺⁵ |
| 233 | Scandium-47 | 4.08 x 10 ⁺¹ | 1.27 x 10 ⁺⁶ | 2.54 x 10 ⁺⁶ |
| 234 | Scandium-48 | 1.86 x 10 ⁺¹ | 4.03 x 10 ⁺⁵ | 8.06 x 10 ⁺⁵ |
| 235 | Selenium-73 | 1.24 x 10 ⁺² | 1.76 x 10 ⁺⁶ | 3.51 x 10 ⁺⁶ |
| 236 | Selenium-75 | 1.75 x 10 ⁺¹ | 2.63 x 10 ⁺⁵ | 5.27 x 10 ⁺⁵ |
| 237 | Silicon-31 | 2.71 x 10 ⁺² | 4.28 x 10 ⁺⁶ | 8.56 x 10 ⁺⁶ |
| 238 | Silicon-32 | 2.71 x 10 ⁻¹ | 1.22 x 10 ⁺⁶ | 2.45 x 10 ⁺⁶ |
| 239 | Silver-105 | 3.72 x 10 ⁺¹ | 1.46 x 10 ⁺⁶ | 2.91 x 10 ⁺⁶ |
| 240 | Silver-108m | 8.51 x 10 ⁻¹ | 2.98 x 10 ⁺⁵ | 5.96 x 10 ⁺⁵ |
| 241 | Silver-110m | 2.48 x 10 ⁰ | 2.45 x 10 ⁺⁵ | 4.89 x 10 ⁺⁵ |
| 242 | Silver-111 | 1.75 x 10 ⁺¹ | 5.27 x 10 ⁺⁵ | 1.05 x 10 ⁺⁶ |
| 243 | Sodium-22 | 1.49 x 10 ⁺¹ | 2.14 x 10 ⁺⁵ | 4.28 x 10 ⁺⁵ |
| 244 | Sodium-24 | 5.62 x 10 ⁺¹ | 1.59 x 10 ⁺⁶ | 3.19 x 10 ⁺⁶ |
| 245 | Strontium-82 | 2.98 x 10 ⁰ | 1.12 x 10 ⁺⁵ | 2.25 x 10 ⁺⁵ |

| Item | Column 1 Radionuclide | Column 2 Release to air concentration (Bq/m³) | Column 3 Release to water concentration (Bq/m³) | Column 4 Release to sewerage system concentration (Bq/m³) |
|-------------|----------------------------------|---|---|---|
| 246 | Strontium-85 | 3.87 x 10 ⁺¹ | 1.22 x 10 ⁺⁶ | 2.45 x 10 ⁺⁶ |
| 247 | Strontium-85m | 4.02 x 10 ⁺³ | 1.12 x 10 ⁺⁸ | 2.25 x 10 ⁺⁸ |
| 248 | Strontium-87m | 8.51 x 10 ⁺² | 2.08 x 10 ⁺⁷ | 4.15 x 10 ⁺⁷ |
| 249 | Strontium-89 | 3.97 x 10 ⁰ | 2.63 x 10 ⁺⁵ | 5.27 x 10 ⁺⁵ |
| 250 | Strontium-90 ¹ | 1.99 x 10 ⁻¹ | 2.45 x 10 ⁺⁴ | 4.89 x 10 ⁺⁴ |
| 251 | Strontium-91 | 5.22 x 10 ⁺¹ | 9.01 x 10 ⁺⁵ | 1.80 x 10 ⁺⁶ |
| 252 | Strontium-92 | 8.76 x 10 ⁺¹ | 1.40 x 10 ⁺⁶ | 2.80 x 10 ⁺⁶ |
| 253 | Sulphur-35 | 2.29 x 10 ⁺² | 8.90 x 10 ⁺⁵ | 1.78 x 10 ⁺⁶ |
| 254 | Tantalum-182 | 3.07 x 10 ⁰ | 4.57 x 10 ⁺⁵ | 9.13 x 10 ⁺⁵ |
| 255 | Technetium-95m | 3.42 x 10 ⁺¹ | 1.10 x 10 ⁺⁶ | 2.21 x 10 ⁺⁶ |
| 256 | Technetium-96 | 2.98 x 10 ⁺¹ | 6.23 x 10 ⁺⁵ | 1.25 x 10 ⁺⁶ |
| 257 | Technetium-96m | 2.71 x 10 ⁺³ | 5.27 x 10 ⁺⁷ | 1.05 x 10 ⁺⁸ |
| 258 | Technetium-97 | 1.42 x 10 ⁺² | 8.25 x 10 ⁺⁶ | 1.65 x 10 ⁺⁷ |
| 259 | Technetium-97m | 9.61 x 10 ⁰ | 1.04 x 10 ⁺⁶ | 2.08 x 10 ⁺⁶ |
| 260 | Technetium-99 | 7.64 x 10 ⁰ | 8.78 x 10 ⁺⁵ | 1.76 x 10 ⁺⁶ |
| 261 | Technetium-99m | 1.03 x 10 ⁺³ | 3.11 x 10 ⁺⁷ | 6.23 x 10 ⁺⁷ |
| 262 | Tellurium-123m | 7.64 x 10 ⁰ | 4.89 x 10 ⁺⁵ | 9.78 x 10 ⁺⁵ |
| 263 | Tellurium-125m | 9.02 x 10 ⁰ | 7.87 x 10 ⁺⁵ | 1.57 x 10 ⁺⁶ |
| 264 | Tellurium-127 | 1.65 x 10 ⁺² | 4.03 x 10 ⁺⁶ | 8.06 x 10 ⁺⁶ |
| 265 | Tellurium-127m | 4.14 x 10 ⁰ | 2.98 x 10 ⁺⁵ | 5.96 x 10 ⁺⁵ |
| 266 | Tellurium-129 | 5.22 x 10 ⁺² | 1.09 x 10 ⁺⁷ | 2.17 x 10 ⁺⁷ |
| 267 | Tellurium-129m | 4.73 x 10 ⁰ | 2.28 x 10 ⁺⁵ | 4.57 x 10 ⁺⁵ |
| 268 | Tellurium-131 | 4.88 x 10 ⁺² | 7.87 x 10 ⁺⁶ | 1.57 x 10 ⁺⁷ |
| 269 | Tellurium-131m | 1.86 x 10 ⁺¹ | 3.60 x 10 ⁺⁵ | 7.21 x 10 ⁺⁵ |
| 270 | Tellurium-132 | 9.93 x 10 ⁰ | 1.85 x 10 ⁺⁵ | 3.70 x 10 ⁺⁵ |
| 271 | Tellurium-133 | 6.77 x 10 ⁺² | 9.51 x 10 ⁺⁶ | 1.90 x 10 ⁺⁷ |
| 272 | Tellurium-133m | 1.57 x 10 ⁺² | 2.45 x 10 ⁺⁶ | 4.89 x 10 ⁺⁶ |
| 273 | Tellurium-134 | 2.71 x 10 ⁺² | 6.23 x 10 ⁺⁶ | 1.25 x 10 ⁺⁷ |

Schedule 2

| Item | Column 1 Radionuclide | Column 2 Release to air concentration (Bq/m ³) | Column 3 Release to water concentration (Bq/m ³) | Column 4 Release to sewerage system concentration (Bq/m ³) |
|------|---|---|--|---|
| 274 | Terbium-160 | 4.51×10^0 | $4.28 \times 10^{+5}$ | $8.56 \times 10^{+5}$ |
| 275 | Thallium-200 | $1.19 \times 10^{+2}$ | $3.42 \times 10^{+6}$ | $6.85 \times 10^{+6}$ |
| 276 | Thallium-201 | $3.92 \times 10^{+2}$ | $7.21 \times 10^{+6}$ | $1.44 \times 10^{+7}$ |
| 277 | Thallium-202 | $9.61 \times 10^{+1}$ | $1.52 \times 10^{+6}$ | $3.04 \times 10^{+6}$ |
| 278 | Thallium-204 | $4.80 \times 10^{+1}$ | $5.27 \times 10^{+5}$ | $1.05 \times 10^{+6}$ |
| 279 | Thorium-226 ¹ | 3.82×10^{-1} | $1.90 \times 10^{+6}$ | $3.81 \times 10^{+6}$ |
| 280 | Thorium-227 | 3.10×10^{-3} | $7.70 \times 10^{+4}$ | $1.54 \times 10^{+5}$ |
| 281 | Thorium-228 ¹ | 7.64×10^{-4} | $9.78 \times 10^{+3}$ | $1.96 \times 10^{+4}$ |
| 282 | Thorium-229 ¹ | 3.01×10^{-4} | $1.43 \times 10^{+3}$ | $2.85 \times 10^{+3}$ |
| 283 | Thorium-230 | 7.44×10^{-4} | $3.26 \times 10^{+3}$ | $6.52 \times 10^{+3}$ |
| 284 | Thorium-231 | $7.44 \times 10^{+1}$ | $2.01 \times 10^{+6}$ | $4.03 \times 10^{+6}$ |
| 285 | Thorium-234 ¹ | 4.08×10^0 | $2.01 \times 10^{+5}$ | $4.03 \times 10^{+5}$ |
| 286 | Thorium-nat including thorium-232 | 7.09×10^{-4} | $3.11 \times 10^{+3}$ | $6.23 \times 10^{+3}$ |
| 287 | Thulium-170 | 4.51×10^0 | $5.27 \times 10^{+5}$ | $1.05 \times 10^{+6}$ |
| 288 | Thulium-171 | $2.29 \times 10^{+1}$ | $6.23 \times 10^{+6}$ | $1.25 \times 10^{+7}$ |
| 289 | Tin-113 | $1.19 \times 10^{+1}$ | $9.38 \times 10^{+5}$ | $1.88 \times 10^{+6}$ |
| 290 | Tin-117m | $1.29 \times 10^{+1}$ | $9.65 \times 10^{+5}$ | $1.93 \times 10^{+6}$ |
| 291 | Tin-12 | $1.06 \times 10^{+2}$ | $2.98 \times 10^{+6}$ | $5.96 \times 10^{+6}$ |
| 292 | Tin-125 | 9.93×10^0 | $2.21 \times 10^{+5}$ | $4.42 \times 10^{+5}$ |
| 293 | Tungsten-181 | $6.93 \times 10^{+2}$ | $8.35 \times 10^{+6}$ | $1.67 \times 10^{+7}$ |
| 294 | Tungsten-185 | $1.35 \times 10^{+2}$ | $1.37 \times 10^{+6}$ | $2.74 \times 10^{+6}$ |
| 295 | Tungsten-187 | $9.02 \times 10^{+1}$ | $9.65 \times 10^{+5}$ | $1.93 \times 10^{+6}$ |
| 296 | Tungsten-188 | $3.55 \times 10^{+1}$ | $2.98 \times 10^{+5}$ | $5.96 \times 10^{+5}$ |
| 297 | Uranium-230 ¹ | 1.99×10^{-3} | $1.25 \times 10^{+4}$ | $2.49 \times 10^{+4}$ |
| 298 | Uranium-231 | $7.44 \times 10^{+1}$ | $2.45 \times 10^{+6}$ | $4.89 \times 10^{+6}$ |
| 299 | Uranium-232 ¹ | 8.51×10^{-4} | $2.08 \times 10^{+3}$ | $4.15 \times 10^{+3}$ |

| Item | Column 1 Radionuclide | Column 2 Release to air concentration (Bq/m ³) | Column 3 Release to water concentration (Bq/m ³) | Column 4 Release to sewerage system concentration (Bq/m ³) |
|------|---------------------------|---|--|---|
| 300 | Uranium-233 | 3.42×10^{-3} | $1.37 \times 10^{+4}$ | $2.74 \times 10^{+4}$ |
| 301 | Uranium-234 | 3.50×10^{-3} | $1.40 \times 10^{+4}$ | $2.80 \times 10^{+4}$ |
| 302 | Uranium-235 ¹ | 3.87×10^{-3} | $1.49 \times 10^{+4}$ | $2.98 \times 10^{+4}$ |
| 303 | Uranium-236 | 3.77×10^{-3} | $1.49 \times 10^{+4}$ | $2.98 \times 10^{+4}$ |
| 304 | Uranium-237 | $1.65 \times 10^{+1}$ | $8.90 \times 10^{+5}$ | $1.78 \times 10^{+6}$ |
| 305 | Uranium-238 | 4.08×10^{-3} | $1.56 \times 10^{+4}$ | $3.11 \times 10^{+4}$ |
| 306 | Uranium-239 | $8.51 \times 10^{+2}$ | $2.45 \times 10^{+7}$ | $4.89 \times 10^{+7}$ |
| 307 | Uranium-240 | $3.55 \times 10^{+1}$ | $6.23 \times 10^{+5}$ | $1.25 \times 10^{+6}$ |
| 308 | Uranium-nat | 4.08×10^{-3} | $1.56 \times 10^{+4}$ | $3.11 \times 10^{+4}$ |
| 309 | Vanadium-48 | $1.10 \times 10^{+1}$ | $3.42 \times 10^{+5}$ | $6.85 \times 10^{+5}$ |
| 310 | Xenon-131m | $4.28 \times 10^{+4}$ | - | - |
| 311 | Xenon-133 | $1.14 \times 10^{+4}$ | - | - |
| 312 | Xenon-135 | $1.43 \times 10^{+3}$ | - | - |
| 313 | Ytterbium-169 | $1.06 \times 10^{+1}$ | $9.65 \times 10^{+5}$ | $1.93 \times 10^{+6}$ |
| 314 | Ytterbium-175 | $4.25 \times 10^{+1}$ | $1.56 \times 10^{+6}$ | $3.11 \times 10^{+6}$ |
| 315 | Yttrium-88 | 7.26×10^0 | $5.27 \times 10^{+5}$ | $1.05 \times 10^{+6}$ |
| 316 | Yttrium-90 | $1.75 \times 10^{+1}$ | $2.54 \times 10^{+5}$ | $5.07 \times 10^{+5}$ |
| 317 | Yttrium-91 | 3.55×10^0 | $2.85 \times 10^{+5}$ | $5.71 \times 10^{+5}$ |
| 318 | Yttrium-91m | $1.99 \times 10^{+3}$ | $6.23 \times 10^{+7}$ | $1.25 \times 10^{+8}$ |
| 319 | Yttrium-92 | $1.06 \times 10^{+2}$ | $1.40 \times 10^{+6}$ | $2.80 \times 10^{+6}$ |
| 320 | Yttrium-93 | $4.96 \times 10^{+1}$ | $5.71 \times 10^{+5}$ | $1.14 \times 10^{+6}$ |
| 321 | Zinc-65 | $1.03 \times 10^{+1}$ | $1.76 \times 10^{+5}$ | $3.51 \times 10^{+5}$ |
| 322 | Zinc-69 | $6.93 \times 10^{+2}$ | $2.21 \times 10^{+7}$ | $4.42 \times 10^{+7}$ |
| 323 | Zinc-69m | $9.02 \times 10^{+1}$ | $2.08 \times 10^{+6}$ | $4.15 \times 10^{+6}$ |
| 324 | Zirconium-93 ¹ | 1.03×10^0 | $2.45 \times 10^{+6}$ | $4.89 \times 10^{+6}$ |
| 325 | Zirconium-95 | 5.41×10^0 | $7.78 \times 10^{+5}$ | $1.56 \times 10^{+6}$ |
| 326 | Zirconium-97 ¹ | $2.13 \times 10^{+1}$ | $3.26 \times 10^{+5}$ | $6.52 \times 10^{+5}$ |

Schedule 2

The superscript '1' immediately following an item in column 1 indicates that the item's concentration is the concentration of the parent radionuclide and its progeny when in secular equilibrium.

Schedule 2A Proof of identity documents

section 8AA

Part 1 Primary identity documents

1. Australian birth certificate
2. overseas birth certificate accompanied by a passport or Australian visa document issued by the Commonwealth Department of Immigration and Citizenship
3. document of identity recognised by the Commonwealth Department of Immigration and Citizenship
4. Australian passport that is current or has not been expired for more than 2 years
5. current foreign passport
6. document evidencing Australian citizenship issued by the Commonwealth Department of Immigration and Citizenship
7. Australian driver's licence that is current or has not been expired for more than 2 years

Part 2 Secondary identity documents

1. current identification card issued by the Commonwealth or State as evidence of the person's entitlement to a financial benefit

Example—

- 1 seniors health card
- 2 health care card
- 3 medicare card
- 4 pensioner concession card

Schedule 2A

- 5 entitlement card issued by the Department of Veteran's Affairs
2. current account card or credit card, issued by a financial institution, that contains the person's name and signature
3. account statement issued by a financial institution within the previous year
4. document evidencing discharge from military service within the previous 2 years
5. student identification card containing the person's photograph and signature that is current or has not been expired for more than 2 years
6. document evidencing enrolment in an education institution within the previous 2 years
7. document evidencing electoral enrolment within the previous 2 years
8. utilities account statement issued by a utilities provider within the previous year
9. notice of land valuation, water rates or council rates issued within the previous year

Schedule 3 Qualifications

section 27

| Column 1 | Column 2 |
|---|--|
| Radiation practice | Qualification |
| intra-oral, or extra-oral, dental diagnostic radiography of a person | general registration under the Health Practitioner Regulation National Law as a dentist |
| plain-film diagnostic radiography of a person | general registration under the Health Practitioner Regulation National Law as a medical practitioner |
| plain-film diagnostic radiography of the spine, pelvis or extremities of a person | general registration under the Health Practitioner Regulation National Law as a chiropractor |
| plain-film diagnostic radiography of an animal | registration under the <i>Veterinary Surgeons Act 1936</i> |

Schedule 3A Authorised persons

section 39A

Part 1 Diagnostic procedures

| | Diagnostic procedure | Authorised person |
|---|---|---|
| 1 | intra-oral and extra-oral dental diagnostic radiography of the teeth and facial bones | a dentist or oral health therapist |
| 2 | intra-oral bitewing dental diagnostic radiography | a dental therapist if the intra-oral bitewing dental radiography is to be performed under a protocol for intra-oral bitewing dental radiography approved by the chief executive |
| 3 | plain film diagnostic radiography | a person who is— (a) a medical practitioner; or (b) a nurse practitioner if the person requests the plain film diagnostic radiography under the diagnostic radiography protocol; or |

| | Diagnostic procedure | Authorised person |
|---|--|---|
| | | (c) a registered nurse if the person— <ul style="list-style-type: none"> <li data-bbox="663 360 1126 456">(i) has successfully completed a training course approved by the chief executive; and <li data-bbox="663 462 1126 596">(ii) has successfully passed an assessment of practical competence approved by the chief executive; and <li data-bbox="663 602 1126 735">(iii) requests the plain film diagnostic radiography under the diagnostic radiography protocol |
| 4 | plain film diagnostic radiography of the hand and wrist or lateral plain film diagnostic radiography projections of the cervical spine | a dentist |
| 5 | plain film diagnostic radiography of the foot and ankle | a person registered under the Health Practitioner Regulation National Law to practise in the podiatry profession, other than as a student |
| 6 | plain film diagnostic radiography of the neuromusculoskeletal system | a chiropractor |
| 7 | plain film diagnostic radiography of the chest | the chief executive, for screening for tuberculosis, under a protocol for tuberculosis screening approved by the chief executive, of a person who presents at a public sector health service facility which undertakes screening procedures for tuberculosis |

| | Diagnostic procedure | Authorised person |
|----|--|---|
| 8 | mammography | the chief executive, for mammography, under a protocol for breast cancer screening approved by the chief executive, of a woman who— <ul style="list-style-type: none">(a) presents at a BreastScreen Queensland Service for the purpose of breast cancer screening; and(b) is eligible to participate in the Queensland Health BreastScreen Queensland Program; and(c) signs the “BreastScreen Queensland Consent for Screening Mammogram” form |
| 9 | computed tomography, and mammography | a person who is— <ul style="list-style-type: none">(a) a specialist health practitioner in the specialty of radiology—diagnostic radiology; or(b) a medical practitioner undergoing a period of training in the specialty of radiology—diagnostic radiology |
| 10 | computed tomography, mammography and bone mineral densitometry | a person who is either of the following if the computed tomography, mammography or bone mineral densitometry is part of a radiation oncology procedure— <ul style="list-style-type: none">(a) a specialist health practitioner in the specialty of radiation oncology;(b) a medical practitioner undergoing a period of training in the specialty of radiation oncology |
| 11 | fluoroscopy | a person who is— <ul style="list-style-type: none">(a) a specialist health practitioner in a recognised specialty; or(b) a medical practitioner undergoing a period of training in a recognised specialty |

| Diagnostic procedure | Authorised person |
|------------------------------|--|
| 12 bone mineral densitometry | a person who is— (a) a specialist health practitioner in the specialty of— (i) radiology—diagnostic radiology; or (ii) radiology—nuclear medicine; or (iii) physician—endocrinology; or (iv) physician—nuclear medicine; or (b) a medical practitioner undergoing a period of training in a specialty mentioned in paragraph (a); or (c) the holder of a written approval from the chief executive stating the person is competent to carry out the procedure, and who is— (i) a specialist health practitioner in a specialty other than a specialty mentioned in paragraph (a); or (ii) a medical practitioner undergoing a period of training in a specialty other than a specialty mentioned in paragraph (a) |

| | Diagnostic procedure | Authorised person |
|----|--|--|
| 13 | diagnostic nuclear medicine | a person who is— (a) a specialist health practitioner in the specialty of radiology—nuclear medicine; or (b) a medical practitioner undergoing a period of training in the specialty of radiology—nuclear medicine; or (c) a specialist health practitioner in the specialty of physician—nuclear medicine; or (d) a medical practitioner undergoing a period of training in the specialty of physician—nuclear medicine |
| 14 | in vivo tests for pathology involving the use of unsealed radioactive substances | a person who is— (a) a specialist health practitioner in the specialty of pathology; or (b) a medical practitioner undergoing a period of training in the specialty of pathology |
| 15 | diagnostic procedures involving the use of laser apparatus | a person who is— (a) a medical practitioner; or (b) a dentist |

Part 2 Therapeutic procedures

| | Therapeutic procedure | Authorised person |
|----|---|--|
| 16 | treatment of malignant and benign conditions involving the use of radiation sources | a person who is— (a) a specialist health practitioner in the specialty of radiation oncology; or (b) a medical practitioner undergoing a period of training in the specialty of radiation oncology |
| 17 | treatment of malignant and benign conditions involving the use of unsealed radioactive substances | a person who is— (a) a specialist health practitioner in the specialty of radiology—nuclear medicine; or (b) a medical practitioner undergoing a period of training in the specialty of radiology—nuclear medicine; or (c) a specialist health practitioner in the specialty of physician—nuclear medicine; or (d) a medical practitioner undergoing a period of training in the specialty of physician—nuclear medicine |
| 18 | treatment of skin lesions involving the use of sealed radioactive substances | a person— (a) who is— (i) a specialist health practitioner in the specialty of dermatology; or (ii) a medical practitioner undergoing a period of training in the specialty of dermatology; and (b) whose decision to prescribe the procedure is in accordance with a decision, about the desired outcome of the treatment, made by the person and another person who is a specialist health practitioner in the specialty of radiation oncology |

| | Therapeutic procedure | Authorised person |
|----|---|--|
| 19 | treatment of eye lesions involving the use of sealed radioactive substances | a person who is— (a) a specialist health practitioner in the specialty of ophthalmology; or (b) a medical practitioner undergoing a period of training in the specialty of ophthalmology |
| 20 | treatment of vascular stenosis | a person— (a) who is— (i) a specialist health practitioner in the specialty of— (A) physician—cardiology; or (B) surgery—vascular surgery; or (C) radiology—diagnostic radiology; or (ii) a medical practitioner undergoing a period of training in the specialty of— (A) physician—cardiology; or (B) surgery—vascular surgery; or (C) radiology—diagnostic radiology; and (b) whose decision to prescribe the procedure is in accordance with a decision about the desired outcome of the treatment, made by the person and another person— (i) who is a specialist health practitioner in the specialty of radiology—nuclear medicine and holds a written approval from the chief executive stating the person is competent to carry out the procedure; or |

| Therapeutic procedure | Authorised person |
|--|--|
| 21 therapeutic procedures involving the use of laser apparatus | (ii) who is a specialist health practitioner in the specialty of radiation oncology; or (iii) who is a specialist health practitioner in the specialty of physician—nuclear medicine a person who is— (a) a medical practitioner; or (b) a dentist |

Schedule 4 Training

section 41

- 1 course entitled 'Compliance testing of diagnostic imaging equipment training course' conducted by the department
- 2 course entitled 'Laser concepts in health care' conducted by the Australian Centre for Medical Laser Technology

Schedule 5 Fees

sections 54, 55 and 56

Part 1 Possession licences

Division 1 Radiation practices carried out with radioactive substances

| | \$ |
|---|--------|
| 1 Application fee for a possession licence— | |
| (a) for possession of a radioactive substance that is a security enhanced source | 700.00 |
| (b) otherwise | 359.00 |
| 2 Possession licence— | |
| (a) 1 year or less— | |
| (i) base fee | 205.00 |
| (ii) for each sealed radioactive substance or type of unsealed radioactive substance | 82.00 |
| (b) more than 1 year but not more than 2 years— | |
| (i) base fee | 410.00 |
| (ii) for each sealed radioactive substance or type of unsealed radioactive substance | 164.00 |
| (c) more than 2 years but not more than 3 years— | |
| (i) base fee | 615.00 |
| (ii) for each sealed radioactive substance or type of unsealed radioactive substance | 246.00 |

Division 2 Radiation practices carried out with ionising radiation apparatus

| | \$ |
|---|--------|
| 3 Application fee for a possession licence | 359.00 |
| 4 Possession licence— | |
| (a) 1 year or less— | |
| (i) base fee | 205.00 |
| (ii) for each ionising radiation apparatus | 61.50 |
| (b) more than 1 year but not more than 2 years— | |
| (i) base fee | 410.00 |
| (ii) for each ionising radiation apparatus | 123.00 |
| (c) more than 2 years but not more than 3 years— | |
| (i) base fee | 615.00 |
| (ii) for each ionising radiation apparatus | 184.50 |

Division 3 Radiation practices carried out with non-ionising radiation apparatus

| | \$ |
|--|--------|
| 5 Application fee for a possession licence | 359.00 |
| 6 Possession licence— | |
| (a) 1 year or less— | |
| (i) base fee | 205.00 |
| (ii) for each non-ionising radiation apparatus | 61.50 |
| (b) more than 1 year but not more than 2 years— | |
| (i) base fee | 410.00 |
| (ii) for each non-ionising radiation apparatus | 123.00 |
| (c) more than 2 years but not more than 3 years— | |
| (i) base fee | 615.00 |
| (ii) for each non-ionising radiation apparatus | 184.50 |

Part 2 Use and transport licences

| | \$ |
|--|--------|
| 7 Application fee for a use or transport licence | 72.00 |
| 8 Use or transport licence fee— | |
| (a) 1 year or less | 51.00 |
| (b) more than 1 year but not more than 2 years. | 102.50 |
| (c) more than 2 years but not more than 3 years. | 154.00 |

Part 3 Other Act instruments

| | \$ |
|---|--------|
| 9 Application fee for approval to acquire | 31.00 |
| 10 Application fee for approval to dispose. | 359.00 |
| 11 Application fee for approval to relocate | 20.50 |
| 12 Application fee for an accreditation certificate | 205.00 |
| 13 Accreditation certificate fee— | |
| (a) 1 year or less | 102.50 |
| (b) more than 1 year but not more than 2 years. | 205.00 |
| (c) more than 2 years but not more than 3 years. | 307.50 |
| 14 Application fee for a radiation safety officer certificate . . | 72.00 |
| 15 Radiation safety officer certificate fee— | |
| (a) 1 year or less | 51.00 |
| (b) more than 1 year but not more than 2 years. | 102.50 |
| (c) more than 2 years but not more than 3 years. | 154.00 |

Part 4 Other fees

| | \$ |
|--|--------|
| 16 Application under section 96 of the Act by the holder of a conditional Act instrument to change the conditions of the instrument imposed by the chief executive | 359.00 |
| 17 Application under section 31 of the Act by a possession licensee to change the licensee's approved radiation safety and protection plan for a radiation practice. | 359.00 |
| 18 Issue under section 101(4) of the Act another Act instrument to replace a lost, stolen, destroyed or damaged Act instrument | 20.50 |
| 19 Copy under section 208(c) of the Act of the register or a part of it (for each page) | 1.00 |
| 20 Application by possession licensee to change the licensee's approved security plan (Act, s 34D(2)(b)) | 359.00 |
| 21 Application for approval of a transport security plan (Act, s 34J(1)(c)(iii)). | 359.00 |
| 22 Application by transport security plan holder to change the holders' approved transport security plan (Act, s 34O(2)(b)) | 359.00 |
| 23 Security check and criminal history check (Act, s 103A(3)) | 85.00 |

Schedule 6 Dictionary

section 3

abrasive blasting material means material that could reasonably be used for abrasive blasting.

administrative security actions means administrative procedures, security checks, assessments and other measures to deal with risks to the security of a security enhanced source at different threat levels.

ancillary imaging equipment, used in connection with the use of a radiation source to carry out a radiation practice involving the production of images, means equipment, other than the source, used in the production and viewing of the images.

ARMCANZ means the Agriculture and Resource Management Council of Australia and New Zealand.

ARPANSA means the Australian Radiation Protection and Nuclear Safety Agency.

AS/NZS means an Australian/New Zealand Standard jointly published by Standards Australia and Standards New Zealand.

Bq means a becquerel.

cabinet radiation apparatus means an ionising radiation apparatus—

- (a) contained in a cabinet that is shielded in a way that minimises the transmission of ionising radiation through the shielding; and
- (b) used for the radiographic, or fluoroscopic, imaging of—
 - (i) things for security, or quality control, purposes; or
 - (ii) excised tissue for pathology purposes.

chiropractor means a person registered under the Health Practitioner Regulation National Law to practise in the chiropractic profession, other than as a student.

commissioning means the tasks involved in installing a radiation source, including tasks to ensure the source is operating in the way it is designed to operate.

contamination, of a person, premises or thing, means the lodgment, attachment or incorporation of radioactive material on, to or in the person, premises or thing.

dental therapist means a person registered under the Health Practitioner Regulation National Law—

- (a) to practise in the dental profession, other than as a student; and
- (b) in the dental therapists division of that profession.

dentist means a person registered under the Health Practitioner Regulation National Law—

- (a) to practise in the dental profession, other than as a student; and
- (b) in the dentists division of that profession.

diagnostic radiography protocol means a document certified by the chief executive and published by the department stating the circumstances in which, and the conditions under which, a person who may act under the protocol may request plain film diagnostic radiography.

document of identity means any document given by a person to the Commonwealth Department of Immigration and Citizenship for the purpose of proving their identity.

educational institution means a school, university, training institution or professional college that—

- (a) educates persons about radiation sources; or
- (b) uses radiation sources in the course of its education of persons.

enclosed radiation apparatus means an ionising radiation apparatus—

- (a) contained in a cabinet that is shielded in a way that minimises the transmission of ionising radiation through the shielding; and

-
- (b) used for monitoring industrial processes or industrial gauging.

equivalent dose, for a person's organ or tissue that is exposed to radiation, means the equivalent dose for the organ or tissue, calculated in accordance with the document entitled 'Recommendations for limiting exposure to ionizing radiation (1995) (Guidance note [NOHSC:3022(1995)])' published by ARPANSA.

Editor's note—

Copies of the document are available on the internet at <www.arpansa.gov.au> or may be purchased from ARPANSA, 619 Lower Plenty Road, Yallambie, Victoria 3085.

external effective dose, received by a person, means the total of the weighted equivalent doses for all organs and tissues of the person as a result of exposure of the organs and tissues to radiation emitted from ionising radiation sources external to the person's body.

fully enclosed analytical radiation apparatus means an ionising radiation apparatus, used for physical or chemical analysis, in which—

- (a) the radiation source, the sample for analysis and equipment irradiated in the analytical process are enclosed in a chamber, or coupled chambers, designed to prevent any person being exposed to the primary x-ray beam of the source during normal operation of the apparatus; and
- (b) the sample for analysis is transferred from a sample port to the chamber in which it is irradiated by a mechanism that prevents any person gaining access to the chamber during normal operation of the apparatus.

gaseous tritium light device means equipment or an instrument, article or subassembly, other than equipment or an instrument, article or subassembly that is a timepiece, incorporating a sealed glass container—

- (a) filled with the radionuclide hydrogen-3 in a gaseous form; and
- (b) coated internally with a phosphor.

GBq means a gigabecquerel.

gigabecquerel means 1000000000 becquerels.

health-related exposure, of a person to ionising radiation, means the exposure of the person to the radiation while undergoing a diagnostic or therapeutic procedure involving the irradiation of the person.

ICRP means the International Commission on Radiological Protection.

internal effective dose, received by a person, means the effective dose from a radionuclide inhaled, ingested or introduced into the person's body, calculated in accordance with the document entitled 'Dose Coefficients for Intakes of Radionuclides by Workers', and known as 'ICRP Publication 68', prepared by ICRP.

Editor's note—

The document may be purchased from Elsevier Science, Level 12, 475 Victoria Ave, Chatswood, New South Wales 2067.

kBq means a kilobecquerel.

kilobecquerel means 1000 becquerels.

laser apparatus means a laser that is a radiation apparatus under section 7.

laser standard means AS/NZS 2211.1-2004 (Safety of laser products, Part 1: Equipment classification, requirements and user's guide).

MBq means a megabecquerel.

megabecquerel means 1000000 becquerels.

microgray means 1/1000000 part of a gray.

millisievert means 1/1000 part of a sievert.

mineral see the *Mineral Resources Act 1989*, schedule.

mineral substances see section 5(1).

mSv means a millisievert.

natural background exposure, of a person to ionising radiation, means the exposure of the person to ionising

radiation occurring naturally in the environment, other than exposure to ionising radiation directly attributable to the carrying out of a radiation practice.

NHMRC means the National Health and Medical Research Council.

nuclear medicine image means an image produced as a result of the detection of the radiation emitted by a radionuclide in a person, after the person has been administered, or injected with, a radiopharmaceutical.

nurse practitioner means a person registered under the Health Practitioner Regulation National Law—

- (a) to practise in the nursing and midwifery profession as a nurse, other than as a student; and
- (b) whose registration is endorsed under that law as being qualified to practise as a nurse practitioner.

occupational exposure, of a person to ionising radiation, means the exposure of the person to the radiation in the course of the person's work, other than natural background exposure to ionising radiation.

oral health therapist means a person registered under the Health Practitioner Regulation National Law—

- (a) to practise in the dental profession, other than as a student; and
- (b) in the oral health therapists division of that profession.

personal protective equipment means equipment that, when worn by a person while involved in carrying out a radiation practice, reduces the exposure of the person to radiation attributable to the carrying out of the practice.

physician's assistant means a person appointed by the chief executive, and employed by the department, as a physician's assistant.

plain film diagnostic radiography includes a digital equivalent of plain film diagnostic radiography.

practice plan, for a physician's assistant, means a document that—

- (a) is developed and signed by a physician's assistant and his or her supervising medical officer; and
- (b) states the circumstances and conditions for a physician's assistant to request a specified diagnostic procedure; and
- (c) is in a form approved by the chief executive.

public exposure, of a person to ionising radiation, means the exposure of the person to the radiation, other than health-related exposure, natural background exposure or occupational exposure to ionising radiation.

public sector health service has the meaning in the *Health Services Act 1991*, section 2.

quality control procedures, for ancillary imaging equipment used in connection with the use of a radiation source to carry out a radiation practice involving the production of images, means preventative maintenance, or routine checking, procedures undertaken to ensure the correct operation of the equipment for the practice.

quality control procedures, for a radiation source used in carrying out a radiation practice, means—

- (a) if the source is a radiation apparatus—preventative maintenance, or routine checking, procedures undertaken to ensure the correct operation of the apparatus for the practice; or
- (b) if the source is a radioactive substance—routine checking procedures undertaken to verify the suitability of the substance for the practice.

quality control procedures, for a sealed source apparatus used in carrying out a radiation practice, means preventative maintenance, or routine checking, procedures undertaken to ensure the correct operation of the apparatus for the practice.

recognised specialty see the Health Practitioner Regulation National Law (Queensland), section 5.

registered nurse means a person registered under the Health Practitioner Regulation National Law—

-
- (a) to practise in the nursing and midwifery profession, other than as a student; and
 - (b) in the registered nurses division of that profession.

safety device means a device that, when used by a person while involved in carrying out a radiation practice, reduces the exposure of the person to radiation attributable to the carrying out of the practice, but does not include personal protective equipment.

security enhanced source see section 7A.

SI means the International System of Units.

sievert, for a total effective or equivalent dose, means the SI unit for the dose.

specialist health practitioner, in a specialty, means a person registered under the Health Practitioner Regulation National Law to practise in the medical profession as a specialist registrant in the specialty.

supervising medical officer, for a physician's assistant, means a person who—

- (a) is a medical practitioner; and
- (b) supervises the work performed by the physician's assistant in his or her employment with the department.

TCLP means the toxicity characteristics leaching procedure stated in AS 4439.2-1997 (Wastes, sediments and contaminated soils, Part 2: Preparation of leachates—Zero headspace procedure).

threat level see section 26A.

total effective dose, for a person for a period, means the total of the external, and internal, effective doses received by the person during the period.

transport code of practice means the document entitled Code of Practice for the Safe Transport of Radioactive Material (2008) published by ARPANSA.

Editor's note—

The Code of Practice for the Safe Transport of Radioactive Material (2008) is available on the internet at <www.arpansa.gov.au> or may be purchased from ARPANSA, 619 Lower Plenty Road, Yallambie, Victoria 3085.

veterinary surgeon see the *Veterinary Surgeons Act 1936*, schedule.

weighted equivalent dose, for a person's organ or tissue that is exposed to radiation, means the product of—

- (a) the tissue weighting factor for the organ or tissue stated in table 2 of the document entitled 'Recommendations for limiting exposure to ionizing radiation (1995) (Guidance note [NOHSC:3022(1995)])' published by ARPANSA; and
- (b) the equivalent dose for the organ or tissue.

Endnotes

1 Index to endnotes

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2 Date to which amendments incorporated

This is the reprint date mentioned in the Reprints Act 1992, section 5(c). Accordingly, this reprint includes all amendments that commenced operation on or before 30 July 2010. Future amendments of the Radiation Safety Regulation 1999 may be made in accordance with this reprint under the Reprints Act 1992, section 49.

3 Key

Key to abbreviations in list of legislation and annotations

| Key | Explanation | Key | Explanation |
|--------|--------------------------------|---------|---|
| AIA | = Acts Interpretation Act 1954 | (prev) | = previously |
| amd | = amended | proc | = proclamation |
| amdt | = amendment | prov | = provision |
| ch | = chapter | pt | = part |
| def | = definition | pubd | = published |
| div | = division | R[X] | = Reprint No. [X] |
| exp | = expires/expired | RA | = Reprints Act 1992 |
| gaz | = gazette | reloc | = relocated |
| hdg | = heading | renum | = renumbered |
| ins | = inserted | rep | = repealed |
| lap | = lapsed | (retro) | = retrospectively |
| notfd | = notified | rv | = revised edition |
| num | = numbered | s | = section |
| o in c | = order in council | sch | = schedule |
| om | = omitted | sdiv | = subdivision |
| orig | = original | SIA | = Statutory Instruments Act 1992 |
| p | = page | SIR | = Statutory Instruments Regulation 2002 |
| para | = paragraph | SL | = subordinate legislation |
| prec | = preceding | sub | = substituted |
| pres | = present | unnum | = unnumbered |
| prev | = previous | | |

4 Table of reprints

Reprints are issued for both future and past effective dates. For the most up-to-date table of reprints, see the reprint with the latest effective date.

If a reprint number includes a letter of the alphabet, the reprint was released in unauthorised, electronic form only.

| Reprint No. | Amendments to | Effective | Reprint date |
|-------------|-----------------|------------------|------------------|
| 1 | none | 1 January 2000 | 1 February 2000 |
| 1A | 2000 SL No. 69 | 20 April 2000 | 5 May 2000 |
| 1B rv | 2001 SL No. 264 | 1 January 2002 | 15 January 2002 |
| 1C rv | 2002 SL No. 20 | 15 February 2002 | 22 February 2002 |
| 1D rv | 2002 SL No. 31 | 1 March 2002 | 7 March 2002 |
| 1E rv | 2002 SL No. 80 | 1 May 2002 | 15 May 2002 |
| 1F rv | 2002 SL No. 156 | 28 June 2002 | 28 June 2002 |

| Reprint No. | Amendments included | Effective | Notes |
|-------------|---------------------|-----------------|-----------------------------|
| 1G rv | 2002 SL No. 156 | 1 July 2002 | |
| 1H rv | 2002 SL No. 322 | 6 December 2002 | |
| 1I rv | 2002 SL No. 322 | 1 March 2003 | R1I rv withdrawn, see R2 rv |

| Reprint No. | Amendments included | Effective | Notes |
|-------------|---------------------|------------------|-------------------------------|
| 2 rv | — | 1 March 2003 | Revision notice issued for R2 |
| 2A rv | 2003 SL No. 130 | 1 July 2003 | |
| 2B rv | 2003 SL No. 172 | 25 July 2003 | |
| 2C | 2004 SL No. 34 | 8 April 2004 | |
| 2D | 2004 SL No. 27 | 1 July 2004 | |
| 2E 2rv | 2004 SL No. 143 | 30 July 2004 | |
| 2F rv | 2004 SL No. 154 | 18 August 2004 | |
| 2G rv | 2005 SL No. 5 | 11 February 2005 | |
| 2H rv | 2005 SL No. 46 | 1 April 2005 | R2H rv withdrawn, see R3 rv |
| 3 rv | — | 1 April 2005 | Revision notice issued for R3 |
| 3A rv | 2005 SL No. 222 | 9 September 2005 | |
| 3B rv | 2005 SL No. 170 | 1 October 2005 | |
| 3C rv | 2005 SL No. 247 | 7 October 2005 | |
| 3D | 2005 SL No. 282 | 25 November 2005 | |
| 3E | 2006 SL No. 148 | 1 July 2006 | |
| 3F | 2006 SL No. 190 | 1 August 2006 | |
| 3G | 2007 SL No. 54 | 13 April 2007 | |
| 3H | 2007 SL No. 129 | 1 July 2007 | R3H withdrawn, see R4 |
| 4 | — | 1 July 2007 | |
| 4A | 2008 SL No. 185 | 1 July 2008 | |
| 4B | 2008 SL No. 422 | 12 December 2008 | |
| | 2008 SL No. 423 | | |
| 4C | 2008 SL No. 423 | 1 March 2009 | R4C withdrawn, see R5 |
| 5 | — | 1 March 2009 | |
| 5A | 2009 SL No. 228 | 23 October 2009 | |
| 5B | 2009 SL No. 312 | 1 January 2010 | |
| 5C | 2010 SL No. 108 | 1 July 2010 | |
| 5D | 2010 SL No. 193 | 30 July 2010 | |
| | 2010 SL No. 195 | | |

5 Tables in earlier reprints

| Name of table | Reprint No. |
|------------------------|-------------|
| Corrected minor errors | 2, 4 |

6 List of legislation

Radiation Safety Regulation 1999 SL No. 330

made by the Governor in Council on 16 December 1999

notfd gaz 17 December 1999 pp 1586–9

ss 1–2 commenced on date of notification

remaining provisions commenced 1 January 2000 (see s 2)

exp 1 September 2010 (see SIA s 54)

Notes—(1) The expiry date may have changed since this reprint was published. See the latest reprint of the SIR for any change.

(2) A regulatory impact statement and explanatory note were prepared.

amending legislation—

Radiation Safety Amendment Regulation (No. 1) 2000 SL No. 69

notfd gaz 20 April 2000 pp 1533–6

s 11 commenced 1 January 2000 (see s 2)

remaining provisions commenced on date of notification

Dental Practitioners Registration Regulation 2001 SL No. 264 ss 1–2, 17 sch 5

notfd gaz 14 December 2001 pp 1351–4

ss 1–2 commenced on date of notification

remaining provisions commenced 1 January 2002 (see s 2)

Health Legislation Amendment Regulation (No. 1) 2002 SL No. 20 pts 1, 6

notfd gaz 15 February 2002 pp 618–19

commenced on date of notification

Medical Practitioners Registration Regulation 2002 SL No. 31 ss 1–2, 16 sch 4

notfd gaz 1 March 2002 pp 850–2

ss 1–2 commenced on date of notification

remaining provisions commenced 1 March 2002 (see s 2)

Chiropractors Registration Regulation 2002 SL No. 79 ss 1–2, 11 sch 4

notfd gaz 26 April 2002 pp 1540–3

ss 1–2 commenced on date of notification

remaining provisions commenced 1 May 2002 (see s 2)

Podiatrists Registration Regulation 2002 SL No. 80 ss 1–2, 10 sch 3

notfd gaz 26 April 2002 pp 1540–3

ss 1–2 commenced on date of notification

remaining provisions commenced 1 May 2002 (see s 2)

Health Legislation Amendment Regulation (No. 2) 2002 SL No. 156 pts 1, 6

notfd gaz 28 June 2002 pp 876–83

s 26 commenced 1 July 2002 (see s 2)

remaining provisions commenced on date of notification

Radiation Safety Amendment Regulation (No. 1) 2002 SL No. 322

notfd gaz 6 December 2002 pp 1162–6

ss 1–2 commenced on date of notification

s 9(1)–(2) (to the extent it ins the def “transport code of practice”) commenced 1 March 2003 (see s 2)
remaining provisions commenced on date of notification

Health Legislation Amendment Regulation (No. 1) 2003 SL No. 130 pts 1, 7

notfd gaz 27 June 2003 pp 749–56
ss 1–2 commenced on date of notification
remaining provisions commenced 1 July 2003 (see s 2)

Radiation Safety Amendment Regulation (No. 1) 2003 SL No. 172

notfd gaz 25 July 2003 pp 1100–2
commenced on date of notification

Dental Practitioners Registration and Other Legislation Amendment Regulation (No. 1) 2004 SL No. 27 ss 1–2, 3(2) sch

notfd gaz 2 April 2004 pp 1315–16
ss 1–2 commenced on date of notification
remaining provisions commenced 1 July 2004 (see s 2)

Health Legislation Amendment Regulation (No. 1) 2004 SL No. 34 pts 1, 15

notfd gaz 8 April 2004 pp 1391–3
commenced on date of notification

Radiation Safety Amendment Regulation (No. 1) 2004 SL No. 143

notfd gaz 30 July 2004 pp 1009–10
commenced on date of notification

Health Legislation Amendment Regulation (No. 3) 2004 SL No. 154 ss 1–2(1), pt 7

notfd gaz 13 August 2004 pp 1165–7
ss 1–2 commenced on date of notification
remaining provisions commenced 18 August 2004 (see s 2(1))

Radiation Safety Amendment Regulation (No. 1) 2005 SL No. 5

notfd gaz 11 February 2005 pp 515–16
commenced on date of notification

Health Legislation Amendment Regulation (No. 1) 2005 SL No. 46 pts 1, 7

notfd gaz 1 April 2005 pp 1066–9
commenced on date of notification

Health Legislation Amendment Regulation (No. 4) 2005 SL No. 170 ss 1, 2(2), pt 8

notfd gaz 29 July 2005 pp 1146–8
ss 1–2 commenced on date of notification
remaining provisions commenced 1 October 2005 (see s 2(2))

Health Legislation Amendment Regulation (No. 5) 2005 SL No. 222 pts 1, 6

notfd gaz 9 September 2005 pp 147–8
commenced on date of notification

Health Legislation Amendment Regulation (No. 6) 2005 SL No. 247 pts 1, 6

notfd gaz 7 October 2005 pp 507–9
commenced on date of notification

Radiation Safety Amendment Regulation (No. 2) 2005 SL No. 282

notfd gaz 25 November 2005 pp 1132–3
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Health Legislation Amendment Regulation (No. 5) 2006 SL No. 148 pts 1, 3

notfd gaz 23 June 2006 pp 898–902
ss 1–2 commenced on date of notification
remaining provisions commenced 1 July 2006 (see s 2)

Health Legislation Amendment Regulation (No. 6) 2006 SL No. 190 ss 1, 2(1), pt 10

notfd gaz 28 July 2006 pp 1480–2
ss 1–2 commenced on date of notification
remaining provisions commenced 1 August 2006 (see s 2(1))

Radiation Safety Amendment Regulation (No. 1) 2007 SL No. 54

notfd gaz 13 April 2007 pp 1685–6
commenced on date of notification

Health Legislation Amendment Regulation (No. 3) 2007 SL No. 129 ss 1, 2(1), pt 7

notfd gaz 22 June 2007 pp 1018–20
ss 1–2 commenced on date of notification
remaining provisions commenced 1 July 2007 (see s 2(1))

Health Legislation Amendment Regulation (No. 3) 2008 SL No. 185 ss 1–2(1), pt 9

notfd gaz 27 June 2008 pp 1268–78
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remaining provisions commenced 1 July 2008 (see s 2(1))

Health (Drugs and Poisons) and Radiation Safety Amendment Regulation (No. 1) 2008 SL No. 422 pts 1, 3

notfd gaz 12 December 2008 pp 2044–53
commenced on date of notification

Radiation Safety Amendment Regulation (No. 1) 2008 SL No. 423

notfd gaz 12 December 2008 pp 2044–53
ss 1–2 commenced on date of notification
s 5 commenced 1 March 2009 (see s 2)
remaining provisions commenced on date of notification

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notfd gaz 23 October 2009 pp 594–5
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notfd gaz 11 December 2009 pp 1187–91
ss 1–2 commenced on date of notification
remaining provisions commenced 1 January 2010 (see s 2)

Health and Other Legislation Amendment Regulation (No. 1) 2010 SL No. 108 pts 1, 14

notfd gaz 11 June 2010 pp 459–61
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notfd gaz 30 July 2010 pp 1253–5
commenced on date of notification

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notfd gaz 30 July 2010 pp 1253–5
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- def **“transport code of practice”** sub 2002 SL No. 322 s 9(1)–(2); 2005 SL No. 5 s 6(1)–(2); 2008 SL No. 423 s 8
- def **“veterinary surgeon”** ins 2000 SL No. 69 s 14(1) amd 2003 SL No. 130 s 17(2)
- def **“weighted equivalent dose”** amd 2005 SL No. 5 s 6(4)

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