Queensland

Subordinate Legislation 1999 No. 330

Health Act 1937

Radiation Safety Act 1999

RADIATION SAFETY REGULATION 1999

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PART 1—PRELIMINARY

Short title

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

Commencement

2. This regulation commences on 1 January 2000.

Dictionary

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

PART 2—RADIATION SOURCES AND SEALED SOURCE APPARATUS

Division 1—Radioactive substances

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

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

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

5.(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

Apparatus emitting ionising radiation—Act, sch 2, definition "radiation apparatus"

6.(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 10 cm 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.

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

7. 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 3—Certificates of compliance

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

8.(1) For section 18(2)[1] 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

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1 Section 18 (When a possession licensee must obtain a certificate of compliance) of the Act

(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—STANDARD CONDITIONS FOR CERTAIN ACT INSTRUMENTS

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

9.(1) For section 75(3)[2] of the Act—

(a) a use licence to use an ionising radiation source to carry out a diagnostic procedure, other than 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 document entitled 'Recommendations for Minimising Radiological Hazards to Patients (1985)' prepared by NHMRC;[3] and

(b) 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 document entitled 'Code of Practice for Radiation Protection in Dentistry (1987)' prepared by NHMRC; and

(c) a use licence to use an ionising radiation source for conducting health-related research on persons is subject to the condition that

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2 Section 75 (Standard conditions for certain Act instruments) of the Act

3 Copies of the document and the documents referred to in paragraphs (b) and (c), section 47(b) and schedule 6, definitions "equivalent dose" and "weighted equivalent dose" may be purchased from the Australian Radiation Protection and Nuclear Safety Agency, Lower Plenty Road, Yallambie, Victoria 3085.

the holder of the licence comply with the document entitled 'Administration of Ionizing Radiation to Human Subjects in Medical Research (1984)' prepared by NHMRC.

(2) For section 75(4) of the Act, a document is the transport code of practice.

PART 4—DISPOSAL

Division 1—Disposal of radioactive material

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

10.(1) For section 26(1)(a)[4] 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

4 Section 26 (Disposal of radioactive material) of the Act

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—

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

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.

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

11.(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 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—

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

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.

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

12.(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—

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

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

Removal etc. of radiation warning signs

13.(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.

PART 5—RADIATION SAFETY AND PROTECTION PLANS

Division 1—Radiation safety and protection measures for all radiation practices

Methods and procedures—Act, s 28(6)

14.(1) For section 28(6)[5] 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.

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5 Section 28 (What is a "radiation safety and protection plan") of the Act

(2) In this section—

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

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

15. 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.

Supply of safety devices—Act, s 28(6)

16. 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.

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

17. 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 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.

Keeping records—Act, s 28(6)

18. 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.

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

19.(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.[6]

(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.

Division 2—Radiation safety and protection measures for certain radiation practices

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

20.(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

6 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.

the carrying out of the practice[7]—

(a) a requirement that the possession licensee in possession of the source, under the licence, for the practice supply personal alarm dosemeters for use by persons while involved in carrying out the practice;

(b) details of the persons who are required to use the dosemeters, described by reference to the nature of their involvement in the carrying out of the practice;

(c) details of how, and when, the dosemeters are to be used by the persons;

(d) details of the dosemeters, 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 dosemeters are to be checked for sensitivity, accuracy, range and energy response;

(f) if a personal alarm dosemeter is repaired or suspected to have been damaged—a requirement that the dosemeter 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 dosemeters, described by reference to the abilities of the persons to perform the task.

(3) In this section—

"personal alarm dosemeter" 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.

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7 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.

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

21.(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.

(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.

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

22.(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.

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

23.(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"**).

(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 25 cm^2 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 25 cm^2, means a marking that identifies, or helps in the identification of, the treated person.

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

24.(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.

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

25.(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 200 Bq a cubic metre.

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

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

26.(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 6—RADIATION SAFETY OFFICERS

Qualifications—Act, s 36(3)

27. For section 36(3)[8] 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.

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

28.(1) For section 37(2)(b)(iii)[9] 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)[10] 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

8 Section 36 (Who may be appointed) of the Act

9 Section 37 (Functions) of the Act

10 Section 224 (Radiation safety officers) of the Act

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

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

29. For section 38(4)(b)[11] 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.

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11 Section 38 (Radiation monitoring—possession and use licensees) of the Act

PART 8—RADIATION DOSE LIMITS

Division 1—Ionising radiation

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)

30.(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)[12] 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 20 mSv a year;

(b) the total effective dose for the person must not be more than 50 mSv a year;

(c) the equivalent dose for each lens of the person's eyes must not be more than 150 mSv a year;

(d) the equivalent dose for each of the person's hands and feet must not be more than 500 mSv a year;

(e) the equivalent dose for a square centimetre of the person's skin must not be more than 500 mSv 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—

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12 Sections 37 (Functions), 41 (Diagnostic or therapeutic procedures), 42 (Causing radiation exposure) 127 (Inspector's power to seize dangerous things), 132 (Receipts for seized things), 133 (Forfeiture of seized things) and 224 (Radiation safety officers) of the Act

(a) the total effective dose for the person must not be more than 1 mSv a year;

(b) the equivalent dose for each lens of the person's eyes must not be more than 15 mSv a year;

(c) the equivalent dose for a square centimetre of the person's skin must not be more than 50 mSv a year.

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)

31.(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 1 mSv a year;

(b) the equivalent dose for each lens of the person's eyes must not be more than 15 mSv a year;

(c) the equivalent dose for a square centimetre of the person's skin must not be more than 50 mSv 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.

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)

32.(1) This section applies if—

(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 5 mSv a year.

(3) Subsection (2) does not apply if the exposure is an occupational exposure to the radiation.

Radiation dose limits applying for persons voluntarily participating in health-related research—Act, ss 42(2), 127(1)(b), 132(4)(b) and 133(2)(c)

33.(1) This section applies if—

(a) a possession licensee, under the licence, possesses an ionising radiation source for a radiation practice; and

(b) a person is exposed to ionising radiation, while involved in carrying out the practice, as a voluntary participant in health-related research.

(2) For sections 42(2), 127(1)(b), 132(4)(b) and 133(2)(c) of the Act, the radiation dose limits applying to the exposure are—

(a) if the person is a child—a total effective dose of 5 mSv over the period starting on the day the person started to be involved in the research and ending on the day before the person turns 18 years; and

(b) if the person is an adult—

(i) the total effective dose for the person, over a 5 year period, must not be more than 10 mSv; and

(ii) the total effective dose for the person must not be more than 5 mSv a year.

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

34. For section 28(3)[13] of the Act, the radiation dose limit for ionising radiation is a total effective dose of 1 mSv a year.

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)

35.(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 1 mSv a year.

(3) However, for 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.

[13] Section 28 (What is a "radiation safety and protection plan") of the Act

Division 2—Non-ionising radiation

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

36. For section 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 7 and 8 of the laser standard.

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

37. For section 41(5) of the Act, the radiation dose limits for non-ionising radiation emitted by a laser apparatus used to carry out a diagnostic or therapeutic procedure involving the irradiation of a person are stated in tables 7 and 8 of the laser standard.

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

38. 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 7 and 8 of the laser standard.

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

39. 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 7 and 8 of the laser standard.

PART 9—EXEMPTIONS

Division 1—Requirement for use licence

Prescribed radiation practices—Act, s 13(3)

40.(1) For section 13(3)[14] 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 maintenance, servicing 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—

14 Section 13 (Requirement for use licence) of the Act

"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.

Training—Act, s 13(2)(b)(ii)

41. 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

Exemption from requirement for possession licence—Act, s 210

42. For section 210[15] of the Act, a radioactive substance containing the radionuclide nickel-63 or hydrogen-3 is exempt from section 12[16] of the Act if—

(a) it is incorporated in a sealed source apparatus; and

(b) the apparatus is used for gas chromatography.

Exemption from requirement for use licence—Act, s 210

43. 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

15 Section 210 (Limited exemption for radiation source) of the Act

16 Section 12 (Requirement for possession licence) of the Act

gauging—the substance;

(b) a cabinet radiation apparatus used for its intended use;

(c) an enclosed radiation apparatus used for its intended use;

(d) a sealed radioactive substance used for sterilising things;

(e) a sealed radioactive substance, having an activity of not more than 370 MBq, 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;

(f) a sealed radioactive substance, having an activity of not more than 4 MBq, used for transferring anatomical landmarks to images produced using a gamma camera;

(g) a radioactive substance, having an activity of not more than 500 kBq, used for an in vitro test.

Exemption from requirement for transport licence—Act, s 210

44.(1) For section 210 of the Act, a radioactive substance enclosed in an excepted package is exempt from sections 14 and 15[17] 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;

[17] Sections 14 (Requirement for transport licence—transport by road) and 15 (Requirement for transport licence—transport otherwise than by road) of the Act

(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.

Smoke detectors—Act, s 210

45.(1) Subsection (2) applies to a radioactive substance, containing the radionuclide americium-241 having an activity of not more than 37 kBq, incorporated in an ionisation chamber smoke detector.

(2) For section 210 of the Act, the substance is exempt from sections 12, 13 and 26[18] of the Act if the detector was manufactured in accordance with sections 2 to 4 of AS 3786-1993 (Smoke alarms), 2nd ed.[19]

(3) Subsection (4) applies to—

(a) a radioactive substance, containing the radionuclide americium-241 having an activity of more than 37 kBq, incorporated in an ionisation chamber smoke detector; or

(b) a radioactive substance, containing a radionuclide other than the radionuclide americium-241, incorporated in an ionisation chamber smoke detector.

(4) For section 210 of the Act, the substance is exempt from sections 12 and 13 of the Act if the detector was—

(a) acquired before 1 January 2000; or

(b) manufactured in accordance with AS 1603.2-1990 (Automatic

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18 Sections 12 (Requirement for possession licence), 13 (Requirement for use licence) and 26 (Disposal of radioactive material) of the Act

19 Copies of the standard and other Australian Standards and Australian/New Zealand Standards referred to in this regulation are available from Standards Australia, 232 St Pauls Terrace, Fortitude Valley, Brisbane.

fire detection and alarm systems, Part 2: Point type smoke detectors).

(5) To remove doubt, it is declared that subsections (2) and (4) do not apply while the detector is being manufactured or repaired.

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

46.(1) For section 210 of the Act, a radioactive substance containing the radionuclide promethium-147, radium-226 or hydrogen-3, incorporated in an item to produce light is exempt from sections 12, 13 and 26 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.

Gaseous tritium light devices—Act, s 210

47. For section 210 of the Act, a radioactive substance containing the radionuclide hydrogen-3 with an activity of less than 74 GBq, 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.

Depleted uranium—Act, s 210

48.(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—

(i) radiation shielding for a container designed to contain radioactive substances; or

(ii) 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.

Sealed radioactive substances used in teaching—Act, s 210

49.(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—

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.

Minerals—Act, s 210

50.(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 10 cm from its surface; and

(b) it is being used—

(i) as a sample in teaching; or

(ii) for display as a geological specimen.

Abrasive blasting material containing radionuclides—Act, s 210

51.(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 x U) + (0.2 x 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) For section 210 of the Act, the material is 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,[20] by 10.

Mineral substances—Act, s 210

52.(1) Subsection (2) applies to a mineral substance being disposed of, other than into the air, water or sewerage system.

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20 The document and the documents referred to in section 52(2)(a) and schedule 6, definition "transport code of practice" are available from Australian Government Publishing Service, City Plaza, corner Adelaide and George Streets, Brisbane.

(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 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—

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

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.

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

53.(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 waste is exempt from section 26 of the Act.

PART 10—FEES

Fees—general

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

Fees—Act, s 51(1)(c)(i)

55.(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)[21] 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.

21 Section 51 (Procedural requirements for applications) of the Act

(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

(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.

Fees—Act, s 79(2)(b)(i)

56.(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)[22] 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.

(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.

22 Section 79 (Applications for renewal) of the Act

Waiver of fees

57.(1) Subsection (2) applies if—

(a) under section 220[23] 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)[24] 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.

(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.

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23 Section 220 (Existing licences) of the Act

24 Section 224 (Radiation safety officers) of the Act

(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.

Refund of fees

58. 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.

PART 11—CONSEQUENTIAL AMENDMENT

Amendment of Health Regulation 1996

59.(1) This section amends the *Health Regulation 1996*.

(2) Part 14—

omit.

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	$1 \times 10^{+1}$	$1 \times 10^{+3}$
3	Actinium-228	$1 \times 10^{+1}$	$1 \times 10^{+6}$
4	Aluminium-26	$1 \times 10^{+1}$	$1 \times 10^{+4}$
5	Americium-241	1×10^{0}	$1 \times 10^{+4}$
6	Americium-242	$1 \times 10^{+3}$	$1 \times 10^{+6}$
7	Americium-242m[1]	1×10^{0}	$1 \times 10^{+4}$
8	Americium-243[1]	1×10^{0}	$1 \times 10^{+3}$
9	Antimony-122	$1 \times 10^{+2}$	$1 \times 10^{+4}$
10	Antimony-124	$1 \times 10^{+1}$	$1 \times 10^{+6}$
11	Antimony-125	$1 \times 10^{+2}$	$1 \times 10^{+6}$
12	Argon-37	$1 \times 10^{+6}$	$1 \times 10^{+8}$
13	Argon-41	$1 \times 10^{+2}$	$1 \times 10^{+9}$
14	Arsenic-72	$1 \times 10^{+1}$	$1 \times 10^{+4}$
15	Arsenic-73	$1 \times 10^{+3}$	$1 \times 10^{+7}$
16	Arsenic-74	$1 \times 10^{+1}$	$1 \times 10^{+6}$
17	Arsenic-76	$1 \times 10^{+2}$	$1 \times 10^{+5}$
18	Arsenic-77	$1 \times 10^{+3}$	$1 \times 10^{+6}$
19	Astatine-211	$1 \times 10^{+3}$	$1 \times 10^{+7}$
20	Barium-128	$1 \times 10^{+1}$	$1 \times 10^{+4}$
21	Barium-131	$1 \times 10^{+2}$	$1 \times 10^{+6}$
22	Barium-133	$1 \times 10^{+2}$	$1 \times 10^{+6}$
23	Barium-140[1]	$1 \times 10^{+1}$	$1 \times 10^{+5}$
24	Berkelium-249	$1 \times 10^{+3}$	$1 \times 10^{+6}$
25	Beryllium-7	$1 \times 10^{+3}$	$1 \times 10^{+7}$
26	Bismuth-206	$1 \times 10^{+1}$	$1 \times 10^{+5}$

[1] 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 1 (continued)

27	Bismuth-207	$1 \times 10^{+1}$	$1 \times 10^{+6}$
28	Bismuth-210	$1 \times 10^{+3}$	$1 \times 10^{+6}$
29	Bismuth-212[1]	$1 \times 10^{+1}$	$1 \times 10^{+5}$
30	Bismuth-213	$1 \times 10^{+2}$	$1 \times 10^{+6}$
31	Bromine-75	$1 \times 10^{+1}$	$1 \times 10^{+6}$
32	Bromine-76	$1 \times 10^{+1}$	$1 \times 10^{+5}$
33	Bromine-77	$1 \times 10^{+1}$	$1 \times 10^{+4}$
34	Bromine-82	$1 \times 10^{+1}$	$1 \times 10^{+6}$
35	Cadmium-109	$1 \times 10^{+4}$	$1 \times 10^{+6}$
36	Cadmium-115	$1 \times 10^{+2}$	$1 \times 10^{+6}$
37	Cadmium-115m	$1 \times 10^{+3}$	$1 \times 10^{+6}$
38	Caesium-129	$1 \times 10^{+2}$	$1 \times 10^{+5}$
39	Caesium-131	$1 \times 10^{+3}$	$1 \times 10^{+6}$
40	Caesium-132	$1 \times 10^{+1}$	$1 \times 10^{+5}$
41	Caesium-134	$1 \times 10^{+1}$	$1 \times 10^{+4}$
42	Caesium-134m	$1 \times 10^{+3}$	$1 \times 10^{+5}$
43	Caesium-135	$1 \times 10^{+4}$	$1 \times 10^{+7}$
44	Caesium-136	$1 \times 10^{+1}$	$1 \times 10^{+5}$
45	Caesium-137[1]	$1 \times 10^{+1}$	$1 \times 10^{+4}$
46	Caesium-138	$1 \times 10^{+1}$	$1 \times 10^{+4}$
47	Calcium-47	$1 \times 10^{+1}$	$1 \times 10^{+6}$
48	Calcium-45	$1 \times 10^{+4}$	$1 \times 10^{+7}$
49	Californium-246	$1 \times 10^{+3}$	$1 \times 10^{+6}$
50	Californium-248	$1 \times 10^{+1}$	$1 \times 10^{+4}$
51	Californium-249	1×10^{0}	$1 \times 10^{+3}$
52	Californium-250	$1 \times 10^{+1}$	$1 \times 10^{+4}$
53	Californium-251	1×10^{0}	$1 \times 10^{+3}$
54	Californium-252	$1 \times 10^{+1}$	$1 \times 10^{+4}$
55	Californium-253	$1 \times 10^{+2}$	$1 \times 10^{+5}$
56	Californium-254	1×10^{0}	$1 \times 10^{+3}$
57	Carbon-14	$1 \times 10^{+4}$	$1 \times 10^{+7}$
58	Carbon-11	$1 \times 10^{+1}$	$1 \times 10^{+6}$
59	Cerium-139	$1 \times 10^{+2}$	$1 \times 10^{+6}$
60	Cerium-141	$1 \times 10^{+2}$	$1 \times 10^{+7}$
61	Cerium-143	$1 \times 10^{+2}$	$1 \times 10^{+6}$
62	Cerium-144[1]	$1 \times 10^{+2}$	$1 \times 10^{+5}$
63	Chlorine-36	$1 \times 10^{+4}$	$1 \times 10^{+6}$
64	Chlorine-38	$1 \times 10^{+1}$	$1 \times 10^{+5}$
65	Chromium-51	$1 \times 10^{+3}$	$1 \times 10^{+7}$
66	Cobalt-57	$1 \times 10^{+2}$	$1 \times 10^{+6}$
67	Cobalt-56	$1 \times 10^{+1}$	$1 \times 10^{+5}$
68	Cobalt-55	$1 \times 10^{+1}$	$1 \times 10^{+6}$
69	Cobalt-62m	$1 \times 10^{+1}$	$1 \times 10^{+5}$

SCHEDULE 1 (continued)

70	Cobalt-60m	$1 \times 10^{+3}$	$1 \times 10^{+6}$
71	Cobalt-60	$1 \times 10^{+1}$	$1 \times 10^{+5}$
72	Cobalt-58	$1 \times 10^{+1}$	$1 \times 10^{+6}$
73	Cobalt-61	$1 \times 10^{+2}$	$1 \times 10^{+6}$
74	Cobalt-58m	$1 \times 10^{+4}$	$1 \times 10^{+7}$
75	Copper-64	$1 \times 10^{+2}$	$1 \times 10^{+6}$
76	Copper-67	$1 \times 10^{+2}$	$1 \times 10^{+6}$
77	Curium-242	$1 \times 10^{+2}$	$1 \times 10^{+5}$
78	Curium-243	1×10^{0}	$1 \times 10^{+4}$
79	Curium-244	$1 \times 10^{+1}$	$1 \times 10^{+4}$
80	Curium-245	1×10^{0}	$1 \times 10^{+3}$
81	Curium-246	1×10^{0}	$1 \times 10^{+3}$
82	Curium-247	1×10^{0}	$1 \times 10^{+4}$
83	Curium-248	1×10^{0}	$1 \times 10^{+3}$
84	Dysprosium-165	$1 \times 10^{+3}$	$1 \times 10^{+6}$
85	Dysprosium-166	$1 \times 10^{+3}$	$1 \times 10^{+6}$
86	Einsteinium-253	$1 \times 10^{+2}$	$1 \times 10^{+5}$
87	Einsteinium-254	$1 \times 10^{+1}$	$1 \times 10^{+4}$
88	Einsteinium-254m	$1 \times 10^{+2}$	$1 \times 10^{+6}$
89	Erbium-161	$1 \times 10^{+1}$	$1 \times 10^{+6}$
90	Erbium-169	$1 \times 10^{+4}$	$1 \times 10^{+7}$
91	Erbium-171	$1 \times 10^{+2}$	$1 \times 10^{+6}$
92	Europium-152	$1 \times 10^{+1}$	$1 \times 10^{+6}$
93	Europium-152m	$1 \times 10^{+2}$	$1 \times 10^{+6}$
94	Europium-154	$1 \times 10^{+1}$	$1 \times 10^{+6}$
95	Europium-155	$1 \times 10^{+2}$	$1 \times 10^{+7}$
96	Fermium-254	$1 \times 10^{+4}$	$1 \times 10^{+7}$
97	Fermium-255	$1 \times 10^{+3}$	$1 \times 10^{+6}$
98	Fluorine-18	$1 \times 10^{+1}$	$1 \times 10^{+6}$
99	Gadolinium-146	$1 \times 10^{+1}$	$1 \times 10^{+4}$
100	Gadolinium-148	1×10^{0}	$1 \times 10^{+3}$
101	Gadolinium-153	$1 \times 10^{+2}$	$1 \times 10^{+7}$
102	Gadolinium-159	$1 \times 10^{+3}$	$1 \times 10^{+6}$
103	Gallium-67	$1 \times 10^{+2}$	$1 \times 10^{+6}$
104	Gallium-68	$1 \times 10^{+1}$	$1 \times 10^{+4}$
105	Gallium-72	$1 \times 10^{+1}$	$1 \times 10^{+5}$
106	Germanium-71	$1 \times 10^{+4}$	$1 \times 10^{+8}$
107	Germanium-68	$1 \times 10^{+1}$	$1 \times 10^{+5}$
108	Gold-198	$1 \times 10^{+2}$	$1 \times 10^{+6}$
109	Gold-199	$1 \times 10^{+2}$	$1 \times 10^{+6}$
110	Hafnium-172	$1 \times 10^{+1}$	$1 \times 10^{+4}$
111	Hafnium-181	$1 \times 10^{+1}$	$1 \times 10^{+6}$
112	Holmium-163	$1 \times 10^{+1}$	$1 \times 10^{+4}$

SCHEDULE 1 (continued)

113	Holmium-166	$1 \times 10^{+3}$	$1 \times 10^{+5}$
114	Hydrogen-3	$1 \times 10^{+6}$	$1 \times 10^{+7}$
115	Indium-111	$1 \times 10^{+2}$	$1 \times 10^{+6}$
116	Indium-113m	$1 \times 10^{+2}$	$1 \times 10^{+6}$
117	Indium-114m	$1 \times 10^{+2}$	$1 \times 10^{+6}$
118	Indium-115m	$1 \times 10^{+2}$	$1 \times 10^{+6}$
119	Iodine-123	$1 \times 10^{+2}$	$1 \times 10^{+7}$
120	Iodine-124	$1 \times 10^{+1}$	$1 \times 10^{+6}$
121	Iodine-125	$1 \times 10^{+3}$	$1 \times 10^{+6}$
122	Iodine-126	$1 \times 10^{+2}$	$1 \times 10^{+6}$
123	Iodine-129	$1 \times 10^{+2}$	$1 \times 10^{+5}$
124	Iodine-130	$1 \times 10^{+1}$	$1 \times 10^{+6}$
125	Iodine-131	$1 \times 10^{+2}$	$1 \times 10^{+5}$
126	Iodine-132	$1 \times 10^{+1}$	$1 \times 10^{+5}$
127	Iodine-133	$1 \times 10^{+1}$	$1 \times 10^{+6}$
128	Iodine-134	$1 \times 10^{+1}$	$1 \times 10^{+5}$
129	Iodine-135	$1 \times 10^{+1}$	$1 \times 10^{+6}$
130	Iridium-190	$1 \times 10^{+1}$	$1 \times 10^{+6}$
131	Iridium-192	$1 \times 10^{+1}$	$1 \times 10^{+4}$
132	Iridium-194	$1 \times 10^{+2}$	$1 \times 10^{+5}$
133	Iron-52	$1 \times 10^{+1}$	$1 \times 10^{+6}$
134	Iron-55	$1 \times 10^{+4}$	$1 \times 10^{+6}$
135	Iron-59	$1 \times 10^{+1}$	$1 \times 10^{+6}$
136	Krypton-74	$1 \times 10^{+2}$	$1 \times 10^{+9}$
137	Krypton-76	$1 \times 10^{+2}$	$1 \times 10^{+9}$
138	Krypton-77	$1 \times 10^{+2}$	$1 \times 10^{+9}$
139	Krypton-79	$1 \times 10^{+3}$	$1 \times 10^{+5}$
140	Krypton-81	$1 \times 10^{+4}$	$1 \times 10^{+7}$
141	Krypton-81m	$1 \times 10^{+1}$	$1 \times 10^{+4}$
142	Krypton-83m	$1 \times 10^{+5}$	$1 \times 10^{+12}$
143	Krypton-85	$1 \times 10^{+5}$	$1 \times 10^{+4}$
144	Krypton-85m	$1 \times 10^{+3}$	$1 \times 10^{+10}$
145	Krypton-87	$1 \times 10^{+2}$	$1 \times 10^{+9}$
146	Krypton-88	$1 \times 10^{+2}$	$1 \times 10^{+9}$
147	Lanthanum-140	$1 \times 10^{+1}$	$1 \times 10^{+5}$
148	Lead-203	$1 \times 10^{+2}$	$1 \times 10^{+6}$
149	Lead-210[1]	$1 \times 10^{+1}$	$1 \times 10^{+4}$
150	Lead-212[1]	$1 \times 10^{+1}$	$1 \times 10^{+5}$
151	Lutetium-172	$1 \times 10^{+1}$	$1 \times 10^{+4}$
152	Lutetium-177	$1 \times 10^{+3}$	$1 \times 10^{+7}$
153	Lutetium-178	$1 \times 10^{+1}$	$1 \times 10^{+4}$
154	Magnesium-28	$1 \times 10^{+1}$	$1 \times 10^{+5}$
155	Manganese-51	$1 \times 10^{+1}$	$1 \times 10^{+5}$

SCHEDULE 1 (continued)

156	Manganese-53	$1 \times 10^{+4}$	$1 \times 10^{+9}$
157	Manganese-52m	$1 \times 10^{+1}$	$1 \times 10^{+5}$
158	Manganese-52	$1 \times 10^{+1}$	$1 \times 10^{+5}$
159	Manganese-56	$1 \times 10^{+1}$	$1 \times 10^{+5}$
160	Manganese-54	$1 \times 10^{+1}$	$1 \times 10^{+6}$
161	Mercury-195m	$1 \times 10^{+2}$	$1 \times 10^{+7}$
162	Mercury-197	$1 \times 10^{+2}$	$1 \times 10^{+6}$
163	Mercury-197m	$1 \times 10^{+2}$	$1 \times 10^{+6}$
164	Mercury-203	$1 \times 10^{+2}$	$1 \times 10^{+5}$
165	Molybdenum-101	$1 \times 10^{+1}$	$1 \times 10^{+6}$
166	Molybdenum-90	$1 \times 10^{+1}$	$1 \times 10^{+6}$
167	Molybdenum-93	$1 \times 10^{+3}$	$1 \times 10^{+8}$
168	Molybdenum-99[1]	$1 \times 10^{+2}$	$1 \times 10^{+6}$
169	Neodymium-147	$1 \times 10^{+2}$	$1 \times 10^{+6}$
170	Neodymium-149	$1 \times 10^{+2}$	$1 \times 10^{+6}$
171	Neptunium-237[1]	1×10^{0}	$1 \times 10^{+3}$
172	Neptunium-239	$1 \times 10^{+2}$	$1 \times 10^{+7}$
173	Neptunium-240	$1 \times 10^{+1}$	$1 \times 10^{+6}$
174	Nickel-63	$1 \times 10^{+5}$	$1 \times 10^{+8}$
175	Nickel-59	$1 \times 10^{+4}$	$1 \times 10^{+8}$
176	Nickel-65	$1 \times 10^{+1}$	$1 \times 10^{+6}$
177	Niobium-93m	$1 \times 10^{+4}$	$1 \times 10^{+7}$
178	Niobium-94	$1 \times 10^{+1}$	$1 \times 10^{+6}$
179	Niobium-95	$1 \times 10^{+1}$	$1 \times 10^{+6}$
180	Niobium-97	$1 \times 10^{+1}$	$1 \times 10^{+6}$
181	Niobium-98	$1 \times 10^{+1}$	$1 \times 10^{+5}$
182	Nitrogen-13	$1 \times 10^{+2}$	$1 \times 10^{+9}$
183	Osmium-185	$1 \times 10^{+1}$	$1 \times 10^{+6}$
184	Osmium-191	$1 \times 10^{+2}$	$1 \times 10^{+7}$
185	Osmium-191m	$1 \times 10^{+3}$	$1 \times 10^{+7}$
186	Osmium-193	$1 \times 10^{+2}$	$1 \times 10^{+6}$
187	Oxygen-15	$1 \times 10^{+2}$	$1 \times 10^{+9}$
188	Palladium-103	$1 \times 10^{+3}$	$1 \times 10^{+8}$
189	Palladium-109	$1 \times 10^{+3}$	$1 \times 10^{+6}$
190	Phosphorus-32	$1 \times 10^{+3}$	$1 \times 10^{+5}$
191	Phosphorus-33	$1 \times 10^{+5}$	$1 \times 10^{+8}$
192	Platinum-191	$1 \times 10^{+2}$	$1 \times 10^{+6}$
193	Platinum-193m	$1 \times 10^{+3}$	$1 \times 10^{+7}$
194	Platinum-197	$1 \times 10^{+2}$	$1 \times 10^{+6}$
195	Platinum-197m	$1 \times 10^{+3}$	$1 \times 10^{+6}$
196	Plutonium-234	$1 \times 10^{+2}$	$1 \times 10^{+7}$
197	Plutonium-235	$1 \times 10^{+2}$	$1 \times 10^{+7}$
198	Plutonium-236	$1 \times 10^{+1}$	$1 \times 10^{+4}$

SCHEDULE 1 (continued)

199	Plutonium-237	$1 \times 10^{+3}$	$1 \times 10^{+7}$
200	Plutonium-238	1×10^{0}	$1 \times 10^{+4}$
201	Plutonium-239	1×10^{0}	$1 \times 10^{+4}$
202	Plutonium-240	1×10^{0}	$1 \times 10^{+3}$
203	Plutonium-241	$1 \times 10^{+2}$	$1 \times 10^{+5}$
204	Plutonium-242	1×10^{0}	$1 \times 10^{+4}$
205	Plutonium-243	$1 \times 10^{+3}$	$1 \times 10^{+7}$
206	Plutonium-244	1×10^{0}	$1 \times 10^{+4}$
207	Polonium-203	$1 \times 10^{+1}$	$1 \times 10^{+6}$
208	Polonium-205	$1 \times 10^{+1}$	$1 \times 10^{+6}$
209	Polonium-207	$1 \times 10^{+1}$	$1 \times 10^{+6}$
210	Polonium-210	$1 \times 10^{+1}$	$1 \times 10^{+4}$
211	Potassium-43	$1 \times 10^{+1}$	$1 \times 10^{+6}$
212	Potassium-42	$1 \times 10^{+2}$	$1 \times 10^{+6}$
213	Potassium-40	$1 \times 10^{+2}$	$1 \times 10^{+6}$
214	Praseodymium-142	$1 \times 10^{+2}$	$1 \times 10^{+5}$
215	Praseodymium-143	$1 \times 10^{+4}$	$1 \times 10^{+6}$
216	Promethium-145	$1 \times 10^{+1}$	$1 \times 10^{+4}$
217	Promethium-147	$1 \times 10^{+4}$	$1 \times 10^{+7}$
218	Promethium-149	$1 \times 10^{+3}$	$1 \times 10^{+6}$
219	Protactinium-230	$1 \times 10^{+1}$	$1 \times 10^{+6}$
220	Protactinium-231	1×10^{0}	$1 \times 10^{+3}$
221	Protactinium-233	$1 \times 10^{+2}$	$1 \times 10^{+7}$
222	Radium-223[1]	$1 \times 10^{+2}$	$1 \times 10^{+5}$
223	Radium-224[1]	$1 \times 10^{+1}$	$1 \times 10^{+5}$
224	Radium-225	$1 \times 10^{+2}$	$1 \times 10^{+5}$
225	Radium-226[1]	$1 \times 10^{+1}$	$1 \times 10^{+4}$
226	Radium-227	$1 \times 10^{+2}$	$1 \times 10^{+6}$
227	Radium-228[1]	$1 \times 10^{+1}$	$1 \times 10^{+5}$
228	Radon-220[1]	$1 \times 10^{+4}$	$1 \times 10^{+7}$
229	Radon-222[a]	$1 \times 10^{+1}$	$1 \times 10^{+8}$
230	Rhenium-186	$1 \times 10^{+3}$	$1 \times 10^{+6}$
231	Rhenium-188	$1 \times 10^{+2}$	$1 \times 10^{+5}$
232	Rhodium-103m	$1 \times 10^{+4}$	$1 \times 10^{+8}$
233	Rhodium-105	$1 \times 10^{+2}$	$1 \times 10^{+7}$
234	Rubidium-81	$1 \times 10^{+1}$	$1 \times 10^{+6}$
235	Rubidium-82	$1 \times 10^{+1}$	$1 \times 10^{+4}$
236	Rubidium-83	$1 \times 10^{+1}$	$1 \times 10^{+4}$
237	Rubidium-86	$1 \times 10^{+2}$	$1 \times 10^{+5}$
238	Ruthenium-103	$1 \times 10^{+2}$	$1 \times 10^{+6}$
239	Ruthenium-105	$1 \times 10^{+1}$	$1 \times 10^{+6}$
240	Ruthenium-106[1]	$1 \times 10^{+2}$	$1 \times 10^{+5}$
241	Ruthenium-97	$1 \times 10^{+2}$	$1 \times 10^{+7}$

SCHEDULE 1 (continued)

242	Samarium-147	$1 \times 10^{+1}$	$1 \times 10^{+4}$
243	Samarium-151	$1 \times 10^{+4}$	$1 \times 10^{+8}$
244	Samarium-153	$1 \times 10^{+2}$	$1 \times 10^{+5}$
245	Scandium-44	$1 \times 10^{+1}$	$1 \times 10^{+4}$
246	Scandium-48	$1 \times 10^{+1}$	$1 \times 10^{+5}$
247	Scandium-46	$1 \times 10^{+1}$	$1 \times 10^{+6}$
248	Scandium-47	$1 \times 10^{+2}$	$1 \times 10^{+6}$
249	Selenium-72	$1 \times 10^{+1}$	$1 \times 10^{+4}$
250	Selenium-73	$1 \times 10^{+1}$	$1 \times 10^{+6}$
251	Selenium-75	$1 \times 10^{+2}$	$1 \times 10^{+6}$
252	Silicon-31	$1 \times 10^{+3}$	$1 \times 10^{+6}$
253	Silicon-32	$1 \times 10^{+1}$	$1 \times 10^{+4}$
254	Silver-105	$1 \times 10^{+2}$	$1 \times 10^{+6}$
255	Silver-109	$1 \times 10^{+1}$	$1 \times 10^{+4}$
256	Silver-110m	$1 \times 10^{+1}$	$1 \times 10^{+6}$
257	Silver-111	$1 \times 10^{+3}$	$1 \times 10^{+6}$
258	Sodium-22	$1 \times 10^{+1}$	$1 \times 10^{+6}$
259	Sodium-24	$1 \times 10^{+1}$	$1 \times 10^{+5}$
260	Strontium-82	$1 \times 10^{+1}$	$1 \times 10^{+4}$
261	Strontium-85	$1 \times 10^{+2}$	$1 \times 10^{+6}$
262	Strontium-85m	$1 \times 10^{+2}$	$1 \times 10^{+7}$
263	Strontium-87m	$1 \times 10^{+2}$	$1 \times 10^{+6}$
264	Strontium-89	$1 \times 10^{+3}$	$1 \times 10^{+5}$
265	Strontium-90	$1 \times 10^{+2}$	$1 \times 10^{+4}$
266	Strontium-91	$1 \times 10^{+1}$	$1 \times 10^{+5}$
267	Strontium-92	$1 \times 10^{+1}$	$1 \times 10^{+6}$
268	Sulphur-35	$1 \times 10^{+5}$	$1 \times 10^{+7}$
269	Tantalum-182	$1 \times 10^{+1}$	$1 \times 10^{+4}$
270	Technetium-95m	$1 \times 10^{+1}$	$1 \times 10^{+6}$
271	Technetium-96	$1 \times 10^{+1}$	$1 \times 10^{+6}$
272	Technetium-96m	$1 \times 10^{+3}$	$1 \times 10^{+7}$
273	Technetium-97	$1 \times 10^{+3}$	$1 \times 10^{+8}$
274	Technetium-97m	$1 \times 10^{+3}$	$1 \times 10^{+7}$
275	Technetium-99	$1 \times 10^{+4}$	$1 \times 10^{+7}$
276	Technetium-99m	$1 \times 10^{+2}$	$1 \times 10^{+7}$
277	Tellurium-123m	$1 \times 10^{+2}$	$1 \times 10^{+7}$
278	Tellurium-125m	$1 \times 10^{+3}$	$1 \times 10^{+7}$
279	Tellurium-127	$1 \times 10^{+3}$	$1 \times 10^{+6}$
280	Tellurium-127m	$1 \times 10^{+3}$	$1 \times 10^{+7}$
281	Tellurium-129	$1 \times 10^{+2}$	$1 \times 10^{+6}$
282	Tellurium-129m	$1 \times 10^{+3}$	$1 \times 10^{+6}$
283	Tellurium-131	$1 \times 10^{+2}$	$1 \times 10^{+5}$
284	Tellurium-131m	$1 \times 10^{+1}$	$1 \times 10^{+6}$

SCHEDULE 1 (continued)

285	Tellurium-132	$1 \times 10^{+2}$	$1 \times 10^{+7}$
286	Tellurium-133	$1 \times 10^{+1}$	$1 \times 10^{+5}$
287	Tellurium-133m	$1 \times 10^{+1}$	$1 \times 10^{+5}$
288	Tellurium-134	$1 \times 10^{+1}$	$1 \times 10^{+6}$
289	Terbium-149	$1 \times 10^{+1}$	$1 \times 10^{+6}$
290	Terbium-160	$1 \times 10^{+1}$	$1 \times 10^{+6}$
291	Thallium-200	$1 \times 10^{+1}$	$1 \times 10^{+6}$
292	Thallium-201	$1 \times 10^{+2}$	$1 \times 10^{+6}$
293	Thallium-202	$1 \times 10^{+2}$	$1 \times 10^{+6}$
294	Thallium-204	$1 \times 10^{+4}$	$1 \times 10^{+4}$
295	Thorium-226[1]	$1 \times 10^{+3}$	$1 \times 10^{+7}$
296	Thorium-227	$1 \times 10^{+1}$	$1 \times 10^{+4}$
297	Thorium-228[1]	1×10^{0}	$1 \times 10^{+4}$
298	Thorium-229[1]	1×10^{0}	$1 \times 10^{+3}$
299	Thorium-230	1×10^{0}	$1 \times 10^{+4}$
300	Thorium-231	$1 \times 10^{+3}$	$1 \times 10^{+7}$
301	Thorium-234	$1 \times 10^{+3}$	$1 \times 10^{+5}$
302	Thorium-nat[1]	1×10^{0}	$1 \times 10^{+3}$
303	Thulium-170	$1 \times 10^{+3}$	$1 \times 10^{+6}$
304	Thulium-171	$1 \times 10^{+4}$	$1 \times 10^{+8}$
305	Tin-113	$1 \times 10^{+3}$	$1 \times 10^{+7}$
306	Tin-117m	$1 \times 10^{+2}$	$1 \times 10^{+6}$
307	Tin-121	$1 \times 10^{+5}$	$1 \times 10^{+7}$
308	Tin-125	$1 \times 10^{+2}$	$1 \times 10^{+5}$
309	Titanium-44	$1 \times 10^{+1}$	$1 \times 10^{+4}$
310	Tungsten-181	$1 \times 10^{+3}$	$1 \times 10^{+7}$
311	Tungsten-185	$1 \times 10^{+4}$	$1 \times 10^{+7}$
312	Tungsten-187	$1 \times 10^{+2}$	$1 \times 10^{+6}$
313	Tungsten-188	$1 \times 10^{+2}$	$1 \times 10^{+5}$
314	Uranium-240[1]	$1 \times 10^{+1}$	$1 \times 10^{+6}$
315	Uranium-230[1]	$1 \times 10^{+1}$	$1 \times 10^{+5}$
316	Uranium-231	$1 \times 10^{+2}$	$1 \times 10^{+7}$
317	Uranium-232[1]	1×10^{0}	$1 \times 10^{+3}$
318	Uranium-233	$1 \times 10^{+1}$	$1 \times 10^{+4}$
319	Uranium-234	$1 \times 10^{+1}$	$1 \times 10^{+4}$
320	Uranium-235[1]	$1 \times 10^{+1}$	$1 \times 10^{+4}$
321	Uranium-236	$1 \times 10^{+1}$	$1 \times 10^{+4}$
322	Uranium-237	$1 \times 10^{+2}$	$1 \times 10^{+6}$
323	Uranium-238[1]	$1 \times 10^{+1}$	$1 \times 10^{+4}$
324	Uranium-239	$1 \times 10^{+2}$	$1 \times 10^{+6}$
325	Uranium-240	$1 \times 10^{+3}$	$1 \times 10^{+7}$
326	Uranium-nat[1]	1×10^{0}	$1 \times 10^{+3}$
327	Vanadium-48	$1 \times 10^{+1}$	$1 \times 10^{+5}$

SCHEDULE 1 (continued)

328	Xenon-127	$1 \times 10^{+1}$	$1 \times 10^{+4}$
329	Xenon-131m	$1 \times 10^{+4}$	$1 \times 10^{+4}$
330	Xenon-133	$1 \times 10^{+3}$	$1 \times 10^{+4}$
331	Xenon-135	$1 \times 10^{+3}$	$1 \times 10^{+10}$
332	Ytterbium-169	$1 \times 10^{+2}$	$1 \times 10^{+7}$
333	Ytterbium-175	$1 \times 10^{+3}$	$1 \times 10^{+7}$
334	Yttrium-88	$1 \times 10^{+1}$	$1 \times 10^{+4}$
335	Yttrium-90	$1 \times 10^{+3}$	$1 \times 10^{+5}$
336	Yttrium-91	$1 \times 10^{+3}$	$1 \times 10^{+6}$
337	Yttrium-91m	$1 \times 10^{+2}$	$1 \times 10^{+6}$
338	Yttrium-92	$1 \times 10^{+2}$	$1 \times 10^{+5}$
339	Yttrium-93	$1 \times 10^{+2}$	$1 \times 10^{+5}$
340	Zinc-69m	$1 \times 10^{+2}$	$1 \times 10^{+6}$
341	Zinc-65	$1 \times 10^{+1}$	$1 \times 10^{+6}$
342	Zinc-69	$1 \times 10^{+4}$	$1 \times 10^{+6}$
343	Zirconium-88	$1 \times 10^{+1}$	$1 \times 10^{+4}$
344	Zirconium-93[1]	$1 \times 10^{+3}$	$1 \times 10^{+7}$
345	Zirconium-95	$1 \times 10^{+1}$	$1 \times 10^{+6}$
346	Zirconium-97[1]	$1 \times 10^{+1}$	$1 \times 10^{+5}$
347	alpha-emitting radionuclide not mentioned in another item	1×10^{0}	$1 \times 10^{+3}$
348	radionuclide that is not alpha-emitting and not mentioned in another item	$1 \times 10^{+1}$	$1 \times 10^{+4}$

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	Aluminium-26	1.65×10^{0}	$1.96 \times 10^{+5}$	$3.91 \times 10^{+5}$
5	Americium-241	7.64×10^{-4}	$3.42 \times 10^{+3}$	$6.85 \times 10^{+3}$
6	Americium-242	1.86×10^{0}	$2.28 \times 10^{+6}$	$4.57 \times 10^{+6}$
7	Americium-242m[1]	8.51×10^{-4}	$3.60 \times 10^{+3}$	$7.21 \times 10^{+3}$
8	Americium-243[1]	7.64×10^{-4}	$3.42 \times 10^{+3}$	$6.85 \times 10^{+3}$
9	Antimony-122	$2.48 \times 10^{+1}$	$4.03 \times 10^{+5}$	$8.06 \times 10^{+5}$
10	Antimony-124	4.88×10^{0}	$2.74 \times 10^{+5}$	$5.48 \times 10^{+5}$
11	Antimony-125	6.62×10^{0}	$6.23 \times 10^{+5}$	$1.25 \times 10^{+6}$
12	Argon-37[1]	$3.34 \times 10^{+8}$	-	-
13	Argon-41[1]	$2.58 \times 10^{+2}$	-	-
14	Arsenic-72	$2.29 \times 10^{+1}$	$3.81 \times 10^{+5}$	$7.61 \times 10^{+5}$
15	Arsenic-73	$3.20 \times 10^{+1}$	$2.63 \times 10^{+6}$	$5.27 \times 10^{+6}$
16	Arsenic-74	$1.42 \times 10^{+1}$	$5.27 \times 10^{+5}$	$1.05 \times 10^{+6}$
17	Arsenic-76	$3.24 \times 10^{+1}$	$4.28 \times 10^{+5}$	$8.56 \times 10^{+5}$
18	Arsenic-77	$7.09 \times 10^{+1}$	$1.71 \times 10^{+6}$	$3.42 \times 10^{+6}$
19	Astatine-211	2.71×10^{-1}	$6.23 \times 10^{+4}$	$1.25 \times 10^{+5}$
20	Barium-128	$2.29 \times 10^{+1}$	$2.54 \times 10^{+5}$	$5.07 \times 10^{+5}$
21	Barium-131	$8.51 \times 10^{+1}$	$1.52 \times 10^{+6}$	$3.04 \times 10^{+6}$
22	Barium-133	$1.65 \times 10^{+1}$	$6.85 \times 10^{+5}$	$1.37 \times 10^{+6}$
23	Barium-140[1]	$1.86 \times 10^{+1}$	$2.74 \times 10^{+5}$	$5.48 \times 10^{+5}$

[1] 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 2 (continued)

24	Berkelium-249	1.99×10^{-1}	$7.06 \times 10^{+5}$	$1.41 \times 10^{+6}$
25	Beryllium-7	$5.73 \times 10^{+2}$	$2.45 \times 10^{+7}$	$4.89 \times 10^{+7}$
26	Bismuth-206	$1.42 \times 10^{+1}$	$3.60 \times 10^{+5}$	$7.21 \times 10^{+5}$
27	Bismuth-207	5.73×10^{0}	$5.27 \times 10^{+5}$	$1.05 \times 10^{+6}$
28	Bismuth-210	3.55×10^{-1}	$5.27 \times 10^{+5}$	$1.05 \times 10^{+6}$
29	Bismuth-212[1]	7.64×10^{-1}	$2.63 \times 10^{+6}$	$5.27 \times 10^{+6}$
30	Bismuth-213	7.26×10^{-1}	$3.42 \times 10^{+6}$	$6.85 \times 10^{+6}$
31	Bromine-75	$3.50 \times 10^{+2}$	$8.67 \times 10^{+6}$	$1.73 \times 10^{+7}$
32	Bromine-76	$5.13 \times 10^{+1}$	$1.49 \times 10^{+6}$	$2.98 \times 10^{+6}$
33	Bromine-77	$2.29 \times 10^{+2}$	$7.13 \times 10^{+6}$	$1.43 \times 10^{+7}$
34	Bromine-82	$3.38 \times 10^{+1}$	$1.27 \times 10^{+6}$	$2.54 \times 10^{+6}$
35	Cadmium-109	3.10×10^{0}	$3.42 \times 10^{+5}$	$6.85 \times 10^{+5}$
36	Cadmium-115	$2.29 \times 10^{+1}$	$4.89 \times 10^{+5}$	$9.78 \times 10^{+5}$
37	Cadmium-115m	4.08×10^{0}	$2.08 \times 10^{+5}$	$4.15 \times 10^{+5}$
38	Caesium-129	$3.68 \times 10^{+2}$	$1.14 \times 10^{+7}$	$2.28 \times 10^{+7}$
39	Caesium-131	$6.62 \times 10^{+2}$	$1.18 \times 10^{+7}$	$2.36 \times 10^{+7}$
40	Caesium-132	$7.84 \times 10^{+1}$	$1.37 \times 10^{+6}$	$2.74 \times 10^{+6}$
41	Caesium-134	3.10×10^{0}	$3.60 \times 10^{+4}$	$7.21 \times 10^{+4}$
42	Caesium-134m	$1.15 \times 10^{+3}$	$3.42 \times 10^{+7}$	$6.85 \times 10^{+7}$
43	Caesium-135	$3.01 \times 10^{+1}$	$3.42 \times 10^{+5}$	$6.85 \times 10^{+5}$
44	Caesium-136	$1.57 \times 10^{+1}$	$2.28 \times 10^{+5}$	$4.57 \times 10^{+5}$
45	Caesium-137[1]	4.44×10^{0}	$5.27 \times 10^{+4}$	$1.05 \times 10^{+5}$
46	Caesium-138	$6.47 \times 10^{+2}$	$7.44 \times 10^{+6}$	$1.49 \times 10^{+7}$
47	Calcium-45	$1.10 \times 10^{+1}$	$9.01 \times 10^{+5}$	$1.80 \times 10^{+6}$
48	Calcium-47	$1.42 \times 10^{+1}$	$4.28 \times 10^{+5}$	$8.56 \times 10^{+5}$
49	Californium-246	7.09×10^{-2}	$2.08 \times 10^{+5}$	$4.15 \times 10^{+5}$
50	Californium-248	3.63×10^{-3}	$2.45 \times 10^{+4}$	$4.89 \times 10^{+4}$
51	Californium-249	4.51×10^{-4}	$1.96 \times 10^{+3}$	$3.91 \times 10^{+3}$
52	Californium-250	9.31×10^{-4}	$4.28 \times 10^{+3}$	$8.56 \times 10^{+3}$
53	Californium-251	4.44×10^{-4}	$1.90 \times 10^{+3}$	$3.81 \times 10^{+3}$
54	Californium-252	1.65×10^{-3}	$7.61 \times 10^{+3}$	$1.52 \times 10^{+4}$
55	Californium-253	2.48×10^{-2}	$4.89 \times 10^{+5}$	$9.78 \times 10^{+5}$
56	Californium-254	8.05×10^{-4}	$1.71 \times 10^{+3}$	$3.42 \times 10^{+3}$
57	Carbon-11	$9.31 \times 10^{+3}$	$2.85 \times 10^{+7}$	$5.71 \times 10^{+7}$
58	Carbon-14	$5.13 \times 10^{+1}$	$1.18 \times 10^{+6}$	$2.36 \times 10^{+6}$
59	Cerium-139	$1.65 \times 10^{+1}$	$2.63 \times 10^{+6}$	$5.27 \times 10^{+6}$
60	Cerium-141	8.27×10^{0}	$9.65 \times 10^{+5}$	$1.93 \times 10^{+6}$
61	Cerium-143	$2.98 \times 10^{+1}$	$6.23 \times 10^{+5}$	$1.25 \times 10^{+6}$
62	Cerium-144[1]	6.08×10^{-1}	$1.32 \times 10^{+5}$	$2.63 \times 10^{+5}$
63	Chlorine-36	4.32×10^{0}	$7.36 \times 10^{+5}$	$1.47 \times 10^{+6}$
64	Chlorine-38	$4.08 \times 10^{+2}$	$5.71 \times 10^{+6}$	$1.14 \times 10^{+7}$
65	Chromium-51	$8.27 \times 10^{+2}$	$1.80 \times 10^{+7}$	$3.60 \times 10^{+7}$
66	Cobalt-55	$3.59 \times 10^{+1}$	$6.23 \times 10^{+5}$	$1.25 \times 10^{+6}$

SCHEDULE 2 (continued)

67	Cobalt-56	4.73×10^{0}	$2.74 \times 10^{+5}$	$5.48 \times 10^{+5}$
68	Cobalt-57	$3.17 \times 10^{+1}$	$3.26 \times 10^{+6}$	$6.52 \times 10^{+6}$
69	Cobalt-58	$1.49 \times 10^{+1}$	$9.26 \times 10^{+5}$	$1.85 \times 10^{+6}$
70	Cobalt-58m	$1.75 \times 10^{+3}$	$2.85 \times 10^{+7}$	$5.71 \times 10^{+7}$
71	Cobalt-60	1.03×10^{0}	$2.01 \times 10^{+5}$	$4.03 \times 10^{+5}$
72	Cobalt-60m	$2.29 \times 10^{+4}$	$4.03 \times 10^{+8}$	$8.06 \times 10^{+8}$
73	Cobalt-61	$3.97 \times 10^{+2}$	$9.26 \times 10^{+6}$	$1.85 \times 10^{+7}$
74	Cobalt-62m	$8.05 \times 10^{+2}$	$1.46 \times 10^{+7}$	$2.91 \times 10^{+7}$
75	Copper-64	$1.99 \times 10^{+2}$	$5.71 \times 10^{+6}$	$1.14 \times 10^{+7}$
76	Copper-67	$5.13 \times 10^{+1}$	$2.01 \times 10^{+6}$	$4.03 \times 10^{+6}$
77	Curium-242	6.20×10^{-3}	$5.71 \times 10^{+4}$	$1.14 \times 10^{+5}$
78	Curium-243	1.03×10^{-3}	$4.57 \times 10^{+3}$	$9.13 \times 10^{+3}$
79	Curium-244	1.19×10^{-3}	$5.71 \times 10^{+3}$	$1.14 \times 10^{+4}$
80	Curium-245	7.44×10^{-4}	$3.26 \times 10^{+3}$	$6.52 \times 10^{+3}$
81	Curium-246	7.44×10^{-4}	$3.26 \times 10^{+3}$	$6.52 \times 10^{+3}$
82	Curium-247	8.27×10^{-4}	$3.60 \times 10^{+3}$	$7.21 \times 10^{+3}$
83	Curium-248	2.13×10^{-4}	$8.90 \times 10^{+2}$	$1.78 \times 10^{+3}$
84	Dysprosium-165	$3.42 \times 10^{+2}$	$6.23 \times 10^{+6}$	$1.25 \times 10^{+7}$
85	Dysprosium-166	$1.65 \times 10^{+1}$	$4.28 \times 10^{+5}$	$8.56 \times 10^{+5}$
86	Einsteinium-253	1.19×10^{-2}	$1.12 \times 10^{+5}$	$2.25 \times 10^{+5}$
87	Einsteinium-254	3.72×10^{-3}	$2.45 \times 10^{+4}$	$4.89 \times 10^{+4}$
88	Einsteinium-254m	6.77×10^{-2}	$1.63 \times 10^{+5}$	$3.26 \times 10^{+5}$
89	Erbium-161	$3.50 \times 10^{+2}$	$8.56 \times 10^{+6}$	$1.71 \times 10^{+7}$
90	Erbium-169	$3.04 \times 10^{+1}$	$1.85 \times 10^{+6}$	$3.70 \times 10^{+6}$
91	Erbium-171	$9.93 \times 10^{+1}$	$1.90 \times 10^{+6}$	$3.81 \times 10^{+6}$
92	Europium-152	7.64×10^{-1}	$4.89 \times 10^{+5}$	$9.78 \times 10^{+5}$
93	Europium-152m	$9.31 \times 10^{+1}$	$1.37 \times 10^{+6}$	$2.74 \times 10^{+6}$
94	Europium-154	5.96×10^{-1}	$3.42 \times 10^{+5}$	$6.85 \times 10^{+5}$
95	Europium-155	4.58×10^{0}	$2.14 \times 10^{+6}$	$4.28 \times 10^{+6}$
96	Fermium-254	3.87×10^{-1}	$1.56 \times 10^{+6}$	$3.11 \times 10^{+6}$
97	Fermium-255	1.15×10^{-1}	$2.74 \times 10^{+5}$	$5.48 \times 10^{+5}$
98	Fluorine-18	$3.20 \times 10^{+2}$	$1.4 \times 10^{+7}$	$2.8 \times 10^{+7}$
99	Gadolinium-146	4.96×10^{0}	$7.13 \times 10^{+5}$	$1.43 \times 10^{+6}$
100	Gadolinium-148	$9.93 \times 10^{+4}$	$1.25 \times 10^{+4}$	$2.49 \times 10^{+4}$
101	Gadolinium-153	$1.19 \times 10^{+1}$	$2.54 \times 10^{+6}$	$5.07 \times 10^{+6}$
102	Gadolinium-159	$7.64 \times 10^{+1}$	$1.40 \times 10^{+6}$	$2.80 \times 10^{+6}$
103	Gallium-67	$1.06 \times 10^{+2}$	$3.60 \times 10^{+6}$	$7.21 \times 10^{+6}$
104	Gallium-72	$3.55 \times 10^{+1}$	$6.23 \times 10^{+5}$	$1.25 \times 10^{+6}$
105	Germanium-68	2.29×10^{0}	$5.27 \times 10^{+5}$	$1.05 \times 10^{+6}$
106	Germanium-71	$2.71 \times 10^{+3}$	$5.71 \times 10^{+7}$	$1.14 \times 10^{+8}$
107	Gold-198	$2.71 \times 10^{+1}$	$6.85 \times 10^{+5}$	$1.37 \times 10^{+6}$
108	Gold-199	$3.92 \times 10^{+1}$	$1.56 \times 10^{+6}$	$3.11 \times 10^{+6}$
109	Hafnium-172	$8.05 \times 10^{+1}$	$6.85 \times 10^{+5}$	$1.37 \times 10^{+6}$

SCHEDULE 2 (continued)

110	Hafnium-181	6.34×10^{0}	$6.23 \times 10^{+5}$	$1.25 \times 10^{+6}$
111	Holmium-166	$3.59 \times 10^{+1}$	$4.89 \times 10^{+5}$	$9.78 \times 10^{+5}$
112	Hydrogen-3	$1.65 \times 10^{+7}$	$3.81 \times 10^{+7}$	$7.61 \times 10^{+7}$
113	Indium-111	$9.61 \times 10^{+1}$	$2.36 \times 10^{+6}$	$4.72 \times 10^{+6}$
114	Indium-113m	$9.31 \times 10^{+2}$	$2.45 \times 10^{+7}$	$4.89 \times 10^{+7}$
115	Indium-114m	2.71×10^{0}	$1.67 \times 10^{+5}$	$3.34 \times 10^{+5}$
116	Indium-115m	$3.42 \times 10^{+2}$	$7.96 \times 10^{+6}$	$1.59 \times 10^{+7}$
117	Iodine-123	$2.71 \times 10^{+2}$	$3.26 \times 10^{+6}$	$6.52 \times 10^{+6}$
118	Iodine-124	4.73×10^{0}	$5.27 \times 10^{+4}$	$1.05 \times 10^{+5}$
119	Iodine-125	4.08×10^{0}	$4.57 \times 10^{+4}$	$9.13 \times 10^{+4}$
120	Iodine-126	2.13×10^{0}	$2.36 \times 10^{+4}$	$4.72 \times 10^{+4}$
121	Iodine-129	5.84×10^{-1}	$6.23 \times 10^{+3}$	$1.25 \times 10^{+4}$
122	Iodine-130	$3.10 \times 10^{+1}$	$3.42 \times 10^{+5}$	$6.85 \times 10^{+5}$
123	Iodine-131	2.71×10^{0}	$3.11 \times 10^{+4}$	$6.23 \times 10^{+4}$
124	Iodine-132	$1.49 \times 10^{+2}$	$2.36 \times 10^{+6}$	$4.72 \times 10^{+6}$
125	Iodine-133	$1.42 \times 10^{+1}$	$1.59 \times 10^{+5}$	$3.19 \times 10^{+5}$
126	Iodine-134	$3.77 \times 10^{+2}$	$6.23 \times 10^{+6}$	$1.25 \times 10^{+7}$
127	Iodine-135	$6.47 \times 10^{+1}$	$7.36 \times 10^{+5}$	$1.47 \times 10^{+6}$
128	Iridium-190	$1.19 \times 10^{+1}$	$5.71 \times 10^{+5}$	$1.14 \times 10^{+6}$
129	Iridium-192	4.80×10^{0}	$4.89 \times 10^{+5}$	$9.78 \times 10^{+5}$
130	Iridium-194	$3.97 \times 10^{+1}$	$5.27 \times 10^{+5}$	$1.05 \times 10^{+6}$
131	Iron-52	$3.13 \times 10^{+1}$	$4.89 \times 10^{+5}$	$9.78 \times 10^{+5}$
132	Iron-55	$3.24 \times 10^{+1}$	$2.08 \times 10^{+6}$	$4.15 \times 10^{+6}$
133	Iron-59	8.51×10^{0}	$3.81 \times 10^{+5}$	$7.61 \times 10^{+5}$
134	Krypton-74[1]	-	-	-
135	Krypton-76[1]	$8.56 \times 10^{+2}$	-	-
136	Krypton-77[1]	$3.51 \times 10^{+2}$	-	-
137	Krypton-79[1]	$1.41 \times 10^{+3}$	-	-
138	Krypton-81[1]	$6.52 \times 10^{+4}$	-	-
139	Krypton-83m[1]	$6.52 \times 10^{+6}$	-	-
140	Krypton-85[1]	$6.23 \times 10^{+4}$	-	-
141	Krypton-85m[1]	$2.32 \times 10^{+3}$	-	-
142	Krypton-87[1]	$4.03 \times 10^{+2}$	-	-
143	Krypton-88[1]	$1.63 \times 10^{+2}$	-	-
144	Lanthanum-140	$1.99 \times 10^{+1}$	$3.42 \times 10^{+5}$	$6.85 \times 10^{+5}$
145	Lead-203	$1.86 \times 10^{+2}$	$2.85 \times 10^{+6}$	$5.71 \times 10^{+6}$
146	Lead-210	2.71×10^{-2}	$1.01 \times 10^{+3}$	$2.01 \times 10^{+3}$
147	Lead-212	9.02×10^{-1}	$1.16 \times 10^{+5}$	$2.32 \times 10^{+5}$
148	Lutetium-172	$1.65 \times 10^{+1}$	$5.27 \times 10^{+5}$	$1.05 \times 10^{+6}$
149	Lutetium-178	$7.26 \times 10^{+2}$	$1.46 \times 10^{+7}$	$2.91 \times 10^{+7}$
150	Lutetium-177	$2.71 \times 10^{+1}$	$1.29 \times 10^{+6}$	$2.58 \times 10^{+6}$
151	Magnesium-28	$1.75 \times 10^{+1}$	$3.11 \times 10^{+5}$	$6.23 \times 10^{+5}$
152	Manganese-51	$4.38 \times 10^{+2}$	$7.36 \times 10^{+6}$	$1.47 \times 10^{+7}$

SCHEDULE 2 (continued)

153	Manganese-52	$1.65 \times 10^{+1}$	$3.81 \times 10^{+5}$	$7.61 \times 10^{+5}$
154	Manganese-52m	$5.96 \times 10^{+2}$	$9.93 \times 10^{+6}$	$1.99 \times 10^{+7}$
155	Manganese-53	$5.73 \times 10^{+2}$	$2.28 \times 10^{+7}$	$4.57 \times 10^{+7}$
156	Manganese-54	$1.99 \times 10^{+1}$	$9.65 \times 10^{+5}$	$1.93 \times 10^{+6}$
157	Manganese-56	$1.49 \times 10^{+2}$	$2.74 \times 10^{+6}$	$5.48 \times 10^{+6}$
158	Mercury-195m	$4.58 \times 10^{+1}$	$1.22 \times 10^{+6}$	$2.45 \times 10^{+6}$
159	Mercury-197	$1.03 \times 10^{+2}$	$2.98 \times 10^{+6}$	$5.96 \times 10^{+6}$
160	Mercury-197m	$4.51 \times 10^{+1}$	$1.46 \times 10^{+6}$	$2.91 \times 10^{+6}$
161	Mercury-203	$1.29 \times 10^{+1}$	$3.60 \times 10^{+5}$	$7.21 \times 10^{+5}$
162	Molybdenum-101	$6.62 \times 10^{+2}$	$1.63 \times 10^{+7}$	$3.26 \times 10^{+7}$
163	Molybdenum-90	$5.32 \times 10^{+1}$	$1.10 \times 10^{+6}$	$2.21 \times 10^{+6}$
164	Molybdenum-93	$1.35 \times 10^{+1}$	$2.63 \times 10^{+5}$	$5.27 \times 10^{+5}$
165	Molybdenum-99[1]	$2.71 \times 10^{+1}$	$5.71 \times 10^{+5}$	$1.14 \times 10^{+6}$
166	Neodymium-147	$1.29 \times 10^{+1}$	$6.23 \times 10^{+5}$	$1.25 \times 10^{+6}$
167	Neodymium-149	$2.29 \times 10^{+2}$	$5.71 \times 10^{+6}$	$1.14 \times 10^{+7}$
168	Neptunium-237[1]	1.42×10^{-3}	$6.23 \times 10^{+3}$	$1.25 \times 10^{+4}$
169	Neptunium-239	$2.71 \times 10^{+1}$	$8.56 \times 10^{+5}$	$1.71 \times 10^{+6}$
170	Neptunium-240	$2.29 \times 10^{+2}$	$8.35 \times 10^{+6}$	$1.67 \times 10^{+7}$
171	Nickel-59	$1.35 \times 10^{+2}$	$1.09 \times 10^{+7}$	$2.17 \times 10^{+7}$
172	Nickel-63	$5.73 \times 10^{+1}$	$4.57 \times 10^{+6}$	$9.13 \times 10^{+6}$
173	Nickel-65	$2.29 \times 10^{+2}$	$3.81 \times 10^{+6}$	$7.61 \times 10^{+6}$
174	Niobium-93m	$3.46 \times 10^{+1}$	$5.71 \times 10^{+6}$	$1.14 \times 10^{+7}$
175	Niobium-94	6.62×10^{-1}	$4.03 \times 10^{+5}$	$8.06 \times 10^{+5}$
176	Niobium-95	$1.86 \times 10^{+1}$	$1.18 \times 10^{+6}$	$2.36 \times 10^{+6}$
177	Niobium-97	$4.14 \times 10^{+2}$	$1.01 \times 10^{+7}$	$2.01 \times 10^{+7}$
178	Niobium-98	$3.01 \times 10^{+2}$	$6.23 \times 10^{+6}$	$1.25 \times 10^{+7}$
179	Nitrogen-13[1]	-	-	-
180	Osmium-185	$1.99 \times 10^{+1}$	$1.34 \times 10^{+6}$	$2.69 \times 10^{+6}$
181	Osmium-191	$1.65 \times 10^{+1}$	$1.20 \times 10^{+6}$	$2.40 \times 10^{+6}$
182	Osmium-191m	$1.99 \times 10^{+2}$	$7.13 \times 10^{+6}$	$1.43 \times 10^{+7}$
183	Osmium-193	$4.38 \times 10^{+1}$	$8.46 \times 10^{+5}$	$1.69 \times 10^{+6}$
184	Oxygen-15[1]	-	-	-
185	Palladium-103	$7.44 \times 10^{+1}$	$3.60 \times 10^{+6}$	$7.21 \times 10^{+6}$
186	Palladium-109	$5.96 \times 10^{+1}$	$1.25 \times 10^{+6}$	$2.49 \times 10^{+6}$
187	Phosphorus-32	9.31×10^{0}	$2.85 \times 10^{+5}$	$5.71 \times 10^{+5}$
188	Phosphorus-33	$2.13 \times 10^{+1}$	$2.85 \times 10^{+6}$	$5.71 \times 10^{+6}$
189	Platinum-191	$1.57 \times 10^{+2}$	$2.01 \times 10^{+6}$	$4.03 \times 10^{+6}$
190	Platinum-193m	$1.42 \times 10^{+2}$	$1.52 \times 10^{+6}$	$3.04 \times 10^{+6}$
191	Platinum-197	$1.86 \times 10^{+2}$	$1.71 \times 10^{+6}$	$3.42 \times 10^{+6}$
192	Platinum-197m	$6.93 \times 10^{+2}$	$8.15 \times 10^{+6}$	$1.63 \times 10^{+7}$
193	Plutonium-234	1.35×10^{0}	$4.28 \times 10^{+6}$	$8.56 \times 10^{+6}$
194	Plutonium-235	$1.15 \times 10^{+4}$	$3.26 \times 10^{+8}$	$6.52 \times 10^{+8}$
195	Plutonium-236	1.65×10^{-3}	$7.96 \times 10^{+3}$	$1.59 \times 10^{+4}$

SCHEDULE 2 (continued)

196	Plutonium-237	$8.27 \times 10^{+1}$	$6.85 \times 10^{+6}$	$1.37 \times 10^{+7}$
197	Plutonium-238	6.93×10^{-4}	$2.98 \times 10^{+3}$	$5.96 \times 10^{+3}$
198	Plutonium-239	6.34×10^{-4}	$2.74 \times 10^{+3}$	$5.48 \times 10^{+3}$
199	Plutonium-240	6.34×10^{-4}	$2.74 \times 10^{+3}$	$5.48 \times 10^{+3}$
200	Plutonium-241	3.50×10^{-2}	$1.46 \times 10^{+5}$	$2.91 \times 10^{+5}$
201	Plutonium-242	6.77×10^{-4}	$2.85 \times 10^{+3}$	$5.71 \times 10^{+3}$
202	Plutonium-243	$2.71 \times 10^{+2}$	$8.06 \times 10^{+6}$	$1.61 \times 10^{+7}$
203	Plutonium-244	6.77×10^{-4}	$2.85 \times 10^{+3}$	$5.71 \times 10^{+3}$
204	Polonium-203	$4.88 \times 10^{+2}$	$1.32 \times 10^{+7}$	$2.63 \times 10^{+7}$
205	Polonium-205	$3.35 \times 10^{+2}$	$1.16 \times 10^{+7}$	$2.32 \times 10^{+7}$
206	Polonium-207	$1.99 \times 10^{+2}$	$4.89 \times 10^{+6}$	$9.78 \times 10^{+6}$
207	Polonium-210	9.93×10^{-3}	$2.85 \times 10^{+3}$	$5.71 \times 10^{+3}$
208	Potassium-40	9.93×10^{0}	$1.10 \times 10^{+5}$	$2.21 \times 10^{+5}$
209	Potassium-42	$1.49 \times 10^{+2}$	$1.59 \times 10^{+6}$	$3.19 \times 10^{+6}$
210	Potassium-43	$1.15 \times 10^{+2}$	$2.74 \times 10^{+6}$	$5.48 \times 10^{+6}$
211	Praseodymium-142	$4.02 \times 10^{+1}$	$5.27 \times 10^{+5}$	$1.05 \times 10^{+6}$
212	Praseodymium-143	$1.29 \times 10^{+1}$	$5.71 \times 10^{+5}$	$1.14 \times 10^{+6}$
213	Promethium-145	8.76×10^{0}	$7.06 \times 10^{+5}$	$1.41 \times 10^{+6}$
214	Promethium-147	6.34×10^{0}	$2.63 \times 10^{+6}$	$5.27 \times 10^{+6}$
215	Promethium-149	$3.63 \times 10^{+1}$	$6.92 \times 10^{+5}$	$1.38 \times 10^{+6}$
216	Protactinium-230	4.19×10^{-2}	$7.44 \times 10^{+5}$	$1.49 \times 10^{+6}$
217	Protactinium-231	2.29×10^{-4}	$9.65 \times 10^{+2}$	$1.93 \times 10^{+3}$
218	Protactinium-233	8.05×10^{0}	$7.87 \times 10^{+5}$	$1.87 \times 10^{+6}$
219	Radium-223[1]	4.32×10^{-3}	$6.85 \times 10^{+3}$	$1.37 \times 10^{+4}$
220	Radium-224[1]	1.03×10^{-2}	$1.05 \times 10^{+4}$	$2.11 \times 10^{+4}$
221	Radium-225	5.13×10^{-3}	$7.21 \times 10^{+3}$	$1.44 \times 10^{+4}$
222	Radium-226[1]	1.86×10^{-3}	$2.45 \times 10^{+3}$	$4.89 \times 10^{+3}$
223	Radium-227	$1.06 \times 10^{+2}$	$8.15 \times 10^{+6}$	$1.63 \times 10^{+7}$
224	Radium-228[1]	1.15×10^{-2}	$1.02 \times 10^{+3}$	$2.04 \times 10^{+3}$
225	Radon-220[1]	$2.25 \times 10^{+1}$	-	-
226	Radon-222[1]	$1.12 \times 10^{+2}$	-	-
227	Rhenium-186	$2.48 \times 10^{+1}$	$4.57 \times 10^{+5}$	$9.13 \times 10^{+5}$
228	Rhenium-188	$4.02 \times 10^{+1}$	$4.89 \times 10^{+5}$	$9.78 \times 10^{+5}$
229	Rhodium-103m	$1.19 \times 10^{+4}$	$1.80 \times 10^{+8}$	$3.60 \times 10^{+8}$
230	Rhodium-105	$6.77 \times 10^{+1}$	$1.85 \times 10^{+6}$	$3.70 \times 10^{+6}$
231	Rubidium-81	$4.38 \times 10^{+2}$	$1.27 \times 10^{+7}$	$2.54 \times 10^{+7}$
232	Rubidium-83	$2.98 \times 10^{+1}$	$3.60 \times 10^{+5}$	$7.21 \times 10^{+5}$
233	Rubidium-86	$2.29 \times 10^{+1}$	$2.45 \times 10^{+5}$	$4.89 \times 10^{+5}$
234	Ruthenium-103	$1.06 \times 10^{+1}$	$9.38 \times 10^{+5}$	$1.88 \times 10^{+6}$
235	Ruthenium-105	$1.19 \times 10^{+2}$	$2.63 \times 10^{+6}$	$5.27 \times 10^{+6}$
236	Ruthenium-106[1]	4.80×10^{-1}	$9.78 \times 10^{+4}$	$1.96 \times 10^{+5}$
237	Ruthenium-97	$1.86 \times 10^{+2}$	$4.57 \times 10^{+6}$	$9.13 \times 10^{+6}$
238	Samarium-147	3.35×10^{-3}	$1.40 \times 10^{+4}$	$2.80 \times 10^{+4}$

SCHEDULE 2 (continued)

239	Samarium-151	8.05×10^{0}	$6.99 \times 10^{+6}$	$1.40 \times 10^{+7}$
240	Samarium-153	$4.38 \times 10^{+1}$	$9.26 \times 10^{+5}$	$1.85 \times 10^{+6}$
241	Scandium-44	$9.93 \times 10^{+1}$	$1.96 \times 10^{+6}$	$3.91 \times 10^{+6}$
242	Scandium-46	4.65×10^{0}	$4.57 \times 10^{+5}$	$9.13 \times 10^{+5}$
243	Scandium-47	$4.08 \times 10^{+1}$	$1.27 \times 10^{+6}$	$2.54 \times 10^{+6}$
244	Scandium-48	$1.86 \times 10^{+1}$	$4.03 \times 10^{+5}$	$8.06 \times 10^{+5}$
245	Selenium-73	$1.24 \times 10^{+2}$	$1.76 \times 10^{+6}$	$3.51 \times 10^{+6}$
246	Selenium-75	$1.75 \times 10^{+1}$	$2.63 \times 10^{+5}$	$5.27 \times 10^{+5}$
247	Silicon-31	$2.71 \times 10^{+2}$	$4.28 \times 10^{+6}$	$8.56 \times 10^{+6}$
248	Silicon-32	2.71×10^{-1}	$1.22 \times 10^{+6}$	$2.45 \times 10^{+6}$
249	Silver-105	$3.72 \times 10^{+1}$	$1.46 \times 10^{+6}$	$2.91 \times 10^{+6}$
250	Silver-110m	2.48×10^{0}	$2.45 \times 10^{+5}$	$4.89 \times 10^{+5}$
251	Silver-111	$1.75 \times 10^{+1}$	$5.27 \times 10^{+5}$	$1.05 \times 10^{+6}$
252	Sodium-22	$1.49 \times 10^{+1}$	$2.14 \times 10^{+5}$	$4.28 \times 10^{+5}$
253	Sodium-24	$5.62 \times 10^{+1}$	$1.59 \times 10^{+6}$	$3.19 \times 10^{+6}$
254	Strontium-82	2.98×10^{0}	$1.12 \times 10^{+5}$	$2.25 \times 10^{+5}$
255	Strontium-85	$3.87 \times 10^{+1}$	$1.22 \times 10^{+6}$	$2.45 \times 10^{+6}$
256	Strontium-85m	$4.02 \times 10^{+3}$	$1.12 \times 10^{+8}$	$2.25 \times 10^{+8}$
257	Strontium-87m	$8.51 \times 10^{+2}$	$2.08 \times 10^{+7}$	$4.15 \times 10^{+7}$
258	Strontium-89	3.97×10^{0}	$2.63 \times 10^{+5}$	$5.27 \times 10^{+5}$
259	Strontium-90[1]	1.99×10^{-1}	$2.45 \times 10^{+4}$	$4.89 \times 10^{+4}$
260	Strontium-91	$5.22 \times 10^{+1}$	$9.01 \times 10^{+5}$	$1.80 \times 10^{+6}$
261	Strontium-92	$8.76 \times 10^{+1}$	$1.40 \times 10^{+6}$	$2.80 \times 10^{+6}$
262	Sulphur-35	$2.29 \times 10^{+2}$	$8.90 \times 10^{+5}$	$1.78 \times 10^{+6}$
263	Tantalum-182	3.07×10^{0}	$4.57 \times 10^{+5}$	$9.13 \times 10^{+5}$
264	Technetium-95m	$3.42 \times 10^{+1}$	$1.10 \times 10^{+6}$	$2.21 \times 10^{+6}$
265	Technetium-96	$2.98 \times 10^{+1}$	$6.23 \times 10^{+5}$	$1.25 \times 10^{+6}$
266	Technetium-96m	$2.71 \times 10^{+3}$	$5.27 \times 10^{+7}$	$1.05 \times 10^{+8}$
267	Technetium-97	$1.42 \times 10^{+2}$	$8.25 \times 10^{+6}$	$1.65 \times 10^{+7}$
268	Technetium-97m	9.61×10^{0}	$1.04 \times 10^{+6}$	$2.08 \times 10^{+6}$
269	Technetium-99	7.64×10^{0}	$8.78 \times 10^{+5}$	$1.76 \times 10^{+6}$
270	Technetium-99m	$1.03 \times 10^{+3}$	$3.11 \times 10^{+7}$	$6.23 \times 10^{+7}$
271	Tellurium-123m	7.64×10^{0}	$4.89 \times 10^{+5}$	$9.78 \times 10^{+5}$
272	Tellurium-125m	9.02×10^{0}	$7.87 \times 10^{+5}$	$1.57 \times 10^{+6}$
273	Tellurium-127	$1.65 \times 10^{+2}$	$4.03 \times 10^{+6}$	$8.06 \times 10^{+6}$
274	Tellurium-127m	4.14×10^{0}	$2.98 \times 10^{+5}$	$5.96 \times 10^{+5}$
275	Tellurium-129	$5.22 \times 10^{+2}$	$1.09 \times 10^{+7}$	$2.17 \times 10^{+7}$
276	Tellurium-129m	4.73×10^{0}	$2.28 \times 10^{+5}$	$4.57 \times 10^{+5}$
277	Tellurium-131	$4.88 \times 10^{+2}$	$7.87 \times 10^{+6}$	$1.57 \times 10^{+7}$
278	Tellurium-131m	$1.86 \times 10^{+1}$	$3.60 \times 10^{+5}$	$7.21 \times 10^{+5}$
279	Tellurium-132	9.93×10^{0}	$1.85 \times 10^{+5}$	$3.70 \times 10^{+5}$
280	Tellurium-133	$6.77 \times 10^{+2}$	$9.51 \times 10^{+6}$	$1.90 \times 10^{+7}$
281	Tellurium-133m	$1.57 \times 10^{+2}$	$2.45 \times 10^{+6}$	$4.89 \times 10^{+6}$

SCHEDULE 2 (continued)

282	Tellurium-134	$2.71 \times 10^{+2}$	$6.23 \times 10^{+6}$	$1.25 \times 10^{+7}$
283	Terbium-149	6.93×10^{0}	$2.74 \times 10^{+6}$	$5.48 \times 10^{+6}$
284	Terbium-160	4.51×10^{0}	$4.28 \times 10^{+5}$	$8.56 \times 10^{+5}$
285	Thallium-200	$1.19 \times 10^{+2}$	$3.42 \times 10^{+6}$	$6.85 \times 10^{+6}$
286	Thallium-201	$3.92 \times 10^{+2}$	$7.21 \times 10^{+6}$	$1.44 \times 10^{+7}$
287	Thallium-202	$9.61 \times 10^{+1}$	$1.52 \times 10^{+6}$	$3.04 \times 10^{+6}$
288	Thallium-204	$4.80 \times 10^{+1}$	$5.27 \times 10^{+5}$	$1.05 \times 10^{+6}$
289	Thorium-226[1]	3.82×10^{-1}	$1.90 \times 10^{+6}$	$3.81 \times 10^{+6}$
290	Thorium-227	3.10×10^{-3}	$7.70 \times 10^{+4}$	$1.54 \times 10^{+5}$
291	Thorium-228[1]	7.64×10^{-4}	$9.78 \times 10^{+3}$	$1.96 \times 10^{+4}$
292	Thorium-229[1]	3.01×10^{-4}	$1.43 \times 10^{+3}$	$2.85 \times 10^{+3}$
293	Thorium-230	7.44×10^{-4}	$3.26 \times 10^{+3}$	$6.52 \times 10^{+3}$
294	Thorium-231	$7.44 \times 10^{+1}$	$2.01 \times 10^{+6}$	$4.03 \times 10^{+6}$
295	Thorium-234	4.08×10^{0}	$2.01 \times 10^{+5}$	$4.03 \times 10^{+5}$
296	Thorium-nat[1]	7.09×10^{-4}	$3.11 \times 10^{+3}$	$6.23 \times 10^{+3}$
297	Thulium-170	4.51×10^{0}	$5.27 \times 10^{+5}$	$1.05 \times 10^{+6}$
298	Thulium-171	$2.29 \times 10^{+1}$	$6.23 \times 10^{+6}$	$1.25 \times 10^{+7}$
299	Tin-113	$1.19 \times 10^{+1}$	$9.38 \times 10^{+5}$	$1.88 \times 10^{+6}$
300	Tin-117m	$1.29 \times 10^{+1}$	$9.65 \times 10^{+5}$	$1.93 \times 10^{+6}$
301	Tin-121	$1.06 \times 10^{+2}$	$2.98 \times 10^{+6}$	$5.96 \times 10^{+6}$
302	Tin-125	9.93×10^{0}	$2.21 \times 10^{+5}$	$4.42 \times 10^{+5}$
303	Titanium-44	2.48×10^{-1}	$1.18 \times 10^{+5}$	$2.36 \times 10^{+5}$
304	Tungsten-181	$6.93 \times 10^{+2}$	$8.35 \times 10^{+6}$	$1.67 \times 10^{+7}$
305	Tungsten-185	$1.35 \times 10^{+2}$	$1.37 \times 10^{+6}$	$2.74 \times 10^{+6}$
306	Tungsten-187	$9.02 \times 10^{+1}$	$9.65 \times 10^{+5}$	$1.93 \times 10^{+6}$
307	Tungsten-188	$3.55 \times 10^{+1}$	$2.98 \times 10^{+5}$	$5.96 \times 10^{+5}$
308	Uranium-230[1]	1.99×10^{-3}	$1.25 \times 10^{+4}$	$2.49 \times 10^{+4}$
309	Uranium-231	$7.44 \times 10^{+1}$	$2.45 \times 10^{+6}$	$4.89 \times 10^{+6}$
310	Uranium-232[1]	8.51×10^{-4}	$2.08 \times 10^{+3}$	$4.15 \times 10^{+3}$
311	Uranium-233	3.42×10^{-3}	$1.37 \times 10^{+4}$	$2.74 \times 10^{+4}$
312	Uranium-234	3.50×10^{-3}	$1.40 \times 10^{+4}$	$2.80 \times 10^{+4}$
313	Uranium-235[1]	3.87×10^{-3}	$1.49 \times 10^{+4}$	$2.98 \times 10^{+4}$
314	Uranium-236	3.77×10^{-3}	$1.49 \times 10^{+4}$	$2.98 \times 10^{+4}$
315	Uranium-237	$1.65 \times 10^{+1}$	$8.90 \times 10^{+5}$	$1.78 \times 10^{+6}$
316	Uranium-238[1]	4.08×10^{-3}	$1.56 \times 10^{+4}$	$3.11 \times 10^{+4}$
317	Uranium-239	$8.51 \times 10^{+2}$	$2.45 \times 10^{+7}$	$4.89 \times 10^{+7}$
318	Uranium-240	$3.55 \times 10^{+1}$	$6.23 \times 10^{+5}$	$1.25 \times 10^{+6}$
319	Uranium-nat[1]	4.08×10^{-3}	$1.56 \times 10^{+4}$	$3.11 \times 10^{+4}$
320	Vanadium-48	$1.10 \times 10^{+1}$	$3.42 \times 10^{+5}$	$6.85 \times 10^{+5}$
321	Xenon-127	$1.41 \times 10^{+3}$	-	-
322	Xenon-131m[1]	$4.28 \times 10^{+4}$	-	-
323	Xenon-133[1]	$1.14 \times 10^{+4}$	-	-
324	Xenon-135[1]	$1.43 \times 10^{+3}$	-	-

SCHEDULE 2 (continued)

325	Ytterbium-169	$1.06 \times 10^{+1}$	$9.65 \times 10^{+5}$	$1.93 \times 10^{+6}$
326	Ytterbium-175	$4.25 \times 10^{+1}$	$1.56 \times 10^{+6}$	$3.11 \times 10^{+6}$
327	Yttrium-88	7.26×10^{0}	$5.27 \times 10^{+5}$	$1.05 \times 10^{+6}$
328	Yttrium-90	$1.75 \times 10^{+1}$	$2.54 \times 10^{+5}$	$5.07 \times 10^{+5}$
329	Yttrium-91	3.55×10^{0}	$2.85 \times 10^{+5}$	$5.71 \times 10^{+5}$
330	Yttrium-91m	$1.99 \times 10^{+3}$	$6.23 \times 10^{+7}$	$1.25 \times 10^{+8}$
331	Yttrium-92	$1.06 \times 10^{+2}$	$1.40 \times 10^{+6}$	$2.80 \times 10^{+6}$
332	Yttrium-93	$4.96 \times 10^{+1}$	$5.71 \times 10^{+5}$	$1.14 \times 10^{+6}$
333	Zinc-65	$1.03 \times 10^{+1}$	$1.76 \times 10^{+5}$	$3.51 \times 10^{+5}$
334	Zinc-69	$6.93 \times 10^{+2}$	$2.21 \times 10^{+7}$	$4.42 \times 10^{+7}$
335	Zinc-69m	$9.02 \times 10^{+1}$	$2.08 \times 10^{+6}$	$4.15 \times 10^{+6}$
336	Zirconium-88	7.26×10^{0}	$2.08 \times 10^{+6}$	$4.15 \times 10^{+6}$
337	Zirconium-93[1]	1.03×10^{0}	$2.45 \times 10^{+6}$	$4.89 \times 10^{+6}$
338	Zirconium-95	5.41×10^{0}	$7.78 \times 10^{+5}$	$1.56 \times 10^{+6}$
339	Zirconium-97[1]	$2.13 \times 10^{+1}$	$3.26 \times 10^{+5}$	$6.52 \times 10^{+5}$

SCHEDULE 3

QUALIFICATIONS

section 27

Column 1 Radiation practice	Column 2 Qualification
plain-film diagnostic radiography of a person	registration under the *Medical Act 1939*
intra-oral, or extra-oral, dental diagnostic radiography of a person	registration under the *Dental Act 1971*
plain-film diagnostic radiography of the spine, pelvis or extremities of a person	registration under the *Chiropractors and Osteopaths Act 1979*
plain-film diagnostic radiography of an animal	registration under the *Veterinary Surgeons Act 1936*

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

section 54

PART 1—POSSESSION LICENCES

Division 1—Radiation practices carried out with radioactive substances

		$
1.	Application fee for a possession licence	100.00
2.	Possession licence—	
	(a) 1 year or less—	
	(i) base fee	120.00
	(ii) for each sealed radioactive substance or type of unsealed radioactive substance	10.00
	(b) more than 1 year but not more than 2 years—	
	(i) base fee	240.00
	(ii) for each sealed radioactive substance or type of unsealed radioactive substance	20.00
	(c) more than 2 years but not more than 3 years—	
	(i) base fee	360.00
	(ii) for each sealed radioactive substance or type of unsealed radioactive substance	30.00

Division 2—Radiation practices carried out with ionising radiation apparatus

		$
3.	Application fee for a possession licence	100.00
4.	Possession licence—	
	(a) 1 year or less—	

SCHEDULE 5 (continued)

	(i) base fee	120.00
	(ii) for each ionising radiation apparatus	20.00
(b)	more than 1 year but not more than 2 years—	
	(i) base fee	240.00
	(ii) for each ionising radiation apparatus	40.00
(c)	more than 2 years but not more than 3 years—	
	(i) base fee	360.00
	(ii) for each ionising radiation apparatus	60.00

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

		$
5.	Application fee for a possession licence	100.00
6.	Possession licence—	
(a)	1 year or less—	
	(i) base fee	120.00
	(ii) for each non-ionising radiation apparatus	10.00
(b)	more than 1 year but not more than 2 years—	
	(i) base fee	240.00
	(ii) for each non-ionising radiation apparatus	20.00
(c)	more than 2 years but not more than 3 years—	
	(i) base fee	360.00
	(ii) for each non-ionising radiation apparatus	30.00

PART 2—USE AND TRANSPORT LICENCES

		$
7.	Application fee for a use or transport licence	50.00
8.	Use or transport licence—	
(a)	1 year or less	35.00

SCHEDULE 5 (continued)

(b)	more than 1 year but not more than 2 years	70.00
(c)	more than 2 years but not more than 3 years	105.00

PART 3—OTHER ACT INSTRUMENTS

		$
9.	Approval to dispose	50.00
10.	Application fee for an accreditation certificate	100.00
11.	Accreditation certificate—	
	(a) 1 year or less	50.00
	(b) more than 1 year but not more than 2 years	100.00
	(c) more than 2 years but not more than 3 years	150.00
12.	Application fee for a radiation safety officer certificate . .	35.00
13.	Radiation safety officer certificate—	
	(a) 1 year or less	35.00
	(b) more than 1 year but not more than 2 years	70.00
	(c) more than 2 years but not more than 3 years	105.00

PART 4—OTHER FEES

		$
14.	Application by the holder of a conditional Act instrument to change the conditions of the instrument imposed by the chief executive	100.00
15.	Application by a possession licensee to change the licensee's approved radiation safety and protection plan for a radiation practice	50.00
16.	Issue of another Act instrument to replace a lost, stolen, destroyed or damaged Act instrument	10.00
17.	Copy of the register, or a part of it (for each page)	0.50

SCHEDULE 6

DICTIONARY

section 3

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

"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.

"AS" means an Australian Standard published by Standards Australia.

"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 things for security, or quality control, purposes.

"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.

"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—

SCHEDULE 6 (continued)

(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)])' prepared by NHMRC.

"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.

"gaseous tritium light device" means equipment or an instrument, article or subassembly 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 1 000 000 000 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.[25]

"kBq" means a kilobecquerel.

25 The document may be purchased from Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford, OX5 1GB, United Kingdom.

SCHEDULE 6 (continued)

"kilobecquerel" means 1 000 becquerels.

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

"laser standard" means AS/NZS 2211.1-1997 (Laser safety, Part 1: Equipment classification, requirements and user's guide).

"MBq" means a megabecquerel.

"megabecquerel" means 1 000 000 becquerels.

"microgray" means 1/1 000 000 part of a gray.

"millisievert" means 1/1 000 part of a sievert.

"mineral" see the *Mineral Resources Act 1989*, section 5.[26]

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26 *Mineral Resources Act 1989*, section 5 provides—

'**"mineral"** means a substance which normally occurs naturally as part of the earth's crust or is dissolved or suspended in water within or upon the earth's crust and includes a substance which may be extracted from such a substance, and includes—

(a) clay if mined for use for its ceramic properties, kaolin and bentonite;
(b) foundry sand;
(c) hydrocarbons and other substances or matter occurring in association with shale or coal and necessarily mined, extracted, produced or released by or in connection with mining for shale or coal or for the purpose of enhancing the safety of current or future mining operations for coal or the extraction or production of mineral oil therefrom;
(d) limestone if mined for use for its chemical properties;
(e) marble;
(f) mineral oil or gas extracted or produced from shale or coal by in situ processes;
(g) peat;
(h) salt including brine;
(i) shale from which mineral oil may be extracted or produced;
(j) silica, including silica sand, if mined for use for its chemical properties;
(k) rock mined in block or slab form for building or monumental purposes;

but does not include—

(l) living matter;
(m) petroleum within the meaning of the *Petroleum Act 1923*;
(n) soil, sand, gravel or rock (other than rock mined in block or slab form for building or monumental purposes) to be used or to be supplied for use as such, whether intact or in broken form;
(o) water.'.

SCHEDULE 6 (continued)

"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.

"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.

"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.

"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.

"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

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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.

"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.

"SI" means the International System of Units.

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

"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).

"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 Code of Practice for the Safe Transport of Radioactive Substances 1990 issued under the *Environment Protection (Nuclear Codes) Act 1978* (Cwlth).

"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)])' prepared by NHMRC; and

(b) the equivalent dose for the organ or tissue.

ENDNOTES

1. Made by the Governor in Council on 16 December 1999.
2. Notified in the gazette on 17 December 1999.
3. Laid before the Legislative Assembly on . . .
4. The administering agency is the Department of Health.