

**[Consultation Draft - April 2002]**

**RECOMMENDATIONS**

**Discharge of Patients  
Undergoing Treatment with  
Radioactive Substances**

**Radiation Protection Series Publication No. ?**



AUSTRALIAN RADIATION PROTECTION AND NUCLEAR SAFETY AGENCY

# Radiation Protection Series

The ***Radiation Protection Series*** is published by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) to promote practices which protect human health and the environment from the possible harmful effects of radiation. ARPANSA is assisted in this task by its Radiation Health and Safety Advisory Council, which reviews the publication program for the ***Series*** and endorses documents for publication, and by its Radiation Health Committee, which oversees the preparation of draft documents and recommends publication.

There are four categories of publication in the ***Series***:

**Radiation Protection Standards** set fundamental requirements for safety. They are prescriptive in style and may be referenced by regulatory instruments in State, Territory or Commonwealth jurisdictions. They may contain key procedural requirements regarded as essential for best international practice in radiation protection, and fundamental quantitative requirements, such as exposure limits.

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**Recommendations** provide guidance on fundamental principles for radiation protection. They are written in an explanatory and non-regulatory style and describe the basic concepts and objectives of best international practice. Where there are related **Radiation Protection Standards** and **Codes of Practice**, they are based on the fundamental principles in the **Recommendations**.

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In many cases, for practical convenience, prescriptive and guidance documents which are related to each other may be published together. A **Code of Practice** and a corresponding **Safety Guide** may be published within a single set of covers.

All publications in the ***Radiation Protection Series*** are informed by public comment during drafting, and **Radiation Protection Standards** and **Codes of Practice**, which may serve a regulatory function, are subject to a process of regulatory review. Further information on these consultation processes may be obtained by contacting ARPANSA.

## RECOMMENDATIONS

# Discharge of Patients Undergoing Treatment with Radioactive Substances

## Radiation Protection Series Publication No. ?

This publication was approved by the Radiation Health Committee on dd mmmm yyyy, and the Radiation Health & Safety Advisory Council, at its meeting on dd mmmm yyyy, advised the CEO to adopt the recommendations.



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The mission of ARPANSA is to provide the scientific expertise and infrastructure necessary to support the objective of the ARPANS Act — to protect the health and safety of people, and to protect the environment, from the harmful effects of radiation.

Published by the Chief Executive Officer of ARPANSA on [dd mmmm yyyy].

## Foreword

These *Recommendations for the Discharge of Patients Undergoing Treatment with Radioactive Substances* (2002) (hereafter referred to as the *Recommendations*) replace the National Health and Medical Research Council (NHMRC) document published in 1983. The *Recommendations* are designed to provide guidance on the conditions that should be met for the discharge from hospital of patients who are undergoing treatment with radioactive substances. The guiding principle is that the radiation dose to persons with whom the patient may make contact outside the hospital (i.e. members of the public, family members or carers) should be kept as low as reasonably achievable, taking into account the particular social and economic factors, and not exceed the relevant dose limit prescribed by regulation. The *Recommendations* have been updated to include the radionuclides currently administered in medical practice, and radionuclides that may come into common use. A rationale for the values chosen for the maximum activities of radionuclides at which patients may be discharged from hospital has been included as an Annex.

The *Recommendations* have been developed by a working group of the Radiation Health Committee, and were released for a public comment period from xx xx 2002 to xx xx 2002. The comments received were reviewed by the working group, and the final *Recommendations* were adopted by the Radiation Health Committee on dd mmmm 2002. The Radiation Health and Safety Advisory Council advised the CEO to adopt the *Recommendations* at their meeting of dd mmmm 2002.

The *Recommendations* will be reviewed from time to time to ensure that they continue to provide the highest standards of protection.

[signature]

John Loy  
CEO of ARPANSA



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***Recommendations***  
**Discharge of Patients Undergoing Treatment with Radioactive Substances**

# **1. Introduction**

## **1.1 BACKGROUND**

These *Recommendations* replace the publication *Recommendations Relating to the Discharge of Patients Undergoing Treatment with Radioactive Substances* (1983) in the NHMRC Radiation Health Series of publications. ARPANSA assumed responsibility for the administration of the Radiation Health Series in 1999. ARPANSA is progressively revising the Radiation Health Series publications and re-issuing them as part of the ARPANSA Radiation Protection Series. Current publications in both series are listed in Annex 4.

## **1.2 PURPOSE**

The purpose of these *Recommendations* is to provide guidance on the conditions which should be met for the discharge from hospital of a patient who is undergoing treatment with a radioactive substance.

These *Recommendations* are based on the premise that the radiation dose to persons with whom the patient may make contact outside the hospital should be kept as low as is reasonably achievable, taking into account the particular social and economic factors, and does not exceed the relevant dose limit prescribed by regulation.

## **1.3 SCOPE**

These *Recommendations* relate to the treatment of patients with sealed or unsealed forms of a radioactive substance. They take into account the dose rate external to the patient, the potential for loss of a sealed source from the patient, and the potential for the spread of contamination of an unsealed radioactive substance which is excreted by the patient.

The requirements for the discharge of individual patients should be assessed by a physician who holds an appropriate radiation licence, preferably in consultation with an experienced medical physicist, having regard to the prevailing circumstances.

## 2. Radiation Protection Criteria for Patient Discharge

### 2.1 DOSE LIMITS AND DOSE CONSTRAINTS

The radiation dose to any member of the general public should not exceed 1 mSv in a year, excluding exposure from natural background radiation and medical procedures. This dose limit applies to adults and children, including an unborn child. In the context of these Recommendations, the dose limit applies to persons who may make contact with the patient, for example, through work, travel, social or domestic activities.

Adult family members or persons who care for the patient are not necessarily subject to the 1 mSv dose limit for members of the public. The radiation dose to an appropriately informed carer who knowingly and willingly provides comfort and support to the patient should not exceed a dose constraint of 5 mSv per treatment episode. This criterion need not be applied rigidly in all cases, as for example when a parent is assisting with the care of a sick child.

### 2.2 MAXIMUM EXTERNAL DOSE RATE FROM THE PATIENT AT THE TIME OF DISCHARGE FROM HOSPITAL

It is recommended that, in order to comply with the criteria given in Section 2.1, the radiation dose rate at a distance of 1 metre from a patient who is undergoing treatment with a radioactive substance should not exceed 25  $\mu\text{Sv}/\text{hour}$  at the time of the patient's discharge from hospital. Measurements at distances of 2 metres or 3 metres may be more appropriate in the clinical setting, thus limiting the radiation exposure to the staff and minimising any effects arising from the non-uniform activity distribution in the patient. It is recognised that the patient does not represent a point-source of activity, so that the inverse-square law often does not apply until at least 3 metres from the patient. It has previously been shown that the external radiation dose rate from iodine-131 distributed within a patient follows an approximate 'inverse 1.5' power rule from 1 to 3 metres<sup>1</sup>. Thus, 25  $\mu\text{Sv}/\text{hour}$  at 1 metre equates to 9  $\mu\text{Sv}/\text{hour}$  at 2 metres and to 5  $\mu\text{Sv}/\text{hour}$  at 3 metres.

The total external radiation dose to members of the public and to family members will depend not only on the dose rate at the time of discharge but also on the physical decay rate of the radionuclide and the biological clearance rate of the radioactive substance. The above recommended level of 25  $\mu\text{Sv}/\text{hour}$  at 1 metre has primarily been derived from considerations of iodine-131 in the treatment of thyroid disorders. It should be equally applicable to other therapeutic radionuclides even though the effective half-lives may differ from that of iodine-131. However, the effective half-life will determine the period during which radiation safety

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<sup>1</sup> HURSOG Guide to Radioiodine Therapy Facility Design  
(<http://www.usyd.edu.au/su/ohs/hursog/I131GUID.PDF>)

restrictions will apply, particularly in relation to the exposure of family members and the time at which the patient may resume normal employment and social activities.

It is recommended that the time of travel by public transport for the patient returning home should not exceed two hours. If it is known that the journey would be of longer duration and the patient intends to use public transport, then the patient should remain either in hospital or in local premises after discharge from hospital so that the journey may be deferred until the activity has fallen to an acceptable level. Alternatively, after taking into consideration the possible dose to a carer or any other person accompanying the patient, the patient may be advised to travel by means other than public transport.

It is generally preferable that iodine-131 thyroid therapy patients do not travel immediately after discharge by public transport such as train, bus or plane, where confined adjacent seating is involved.

### **2.3 TREATMENT OF PATIENTS WITH SEALED SOURCES**

The physician with the appropriate radiation licence who is responsible for the treatment of patients with sealed sources of caesium-137 or iridium-192 must ensure the safe keeping of these sources at all times. Consequently, a patient who is undergoing treatment with a sealed source or sources of caesium-137 or iridium-192 is not to be discharged from hospital until these sources have been removed from the patient's body.

Where one or more sealed sources of other radionuclides remain in a patient who is to be discharged from hospital, consideration should be given to the possibility that these sources may be dislodged from the patient, and to the need for appropriate action to be taken by the patient or carer in this contingency.

### **2.4 TREATMENT OF PATIENTS WITH UNSEALED SOURCES**

When a patient is to be discharged from hospital or is to leave a clinic immediately following treatment with an unsealed source of a radionuclide, consideration should be given to the possibility of contamination arising from escape of body fluids, for example as a result of urinary incontinence or vomiting.

### **2.5 MAXIMUM RADIONUCLIDE ACTIVITY AT WHICH A PATIENT MAY BE DISCHARGED FROM HOSPITAL OR WHICH MAY BE ADMINISTERED TO AN OUTPATIENT**

It is recommended that, in order to comply with the criteria given in Sections 2.1 and 2.2, the patient should be retained in hospital following the administration if the activity of the radionuclide administered exceeds the activity given in Annex 1 for sealed sources or Annex 2 for unsealed sources of the radionuclide in question. In general, a patient administered a radionuclide of activity greater than these levels may be discharged from

hospital when the radionuclide activity has reduced to, or below, the relevant activity given in Annex 1 for sealed sources or Annex 2 for unsealed sources. If the administered activity does not exceed the activity listed in Annex 1 or Annex 2, the patient may be treated as an outpatient. Where the patient is undergoing a novel treatment with a radioactive substance not listed in these Annexes, guidance should be sought from the regulatory authority. Further information on the rationale for the maximum activities at which patients may be discharged from hospital is provided in Annex 3.

## **2.6 POSTPONEMENT OF DISCHARGE OF A PATIENT FROM HOSPITAL**

A patient should not be discharged from hospital if it seems likely that:

- (i) a sealed source may be lost,
- (ii) a spread of contamination may occur as a result of excretion of an unsealed source,
- (iii) the patient may vomit shortly after oral administration of an unsealed source.

## **2.7 DISCHARGE OF A PATIENT TO PREMISES OTHER THAN A PRIVATE DWELLING**

If a patient is to be transferred to an institution or place of care other than a private dwelling, for example to a nursing home, appropriate notification of the patient's radioactive status should be sent to that place in advance of the transfer. The notification should include details of the form and activity of the radionuclide, the time and date of administration of the radionuclide to the patient, the radiation characteristics of the radionuclide, and the precautions that should be observed for a specified time by the persons who will care for the patient. The name of the hospital from which the patient was discharged should also be provided, together with the name and telephone number of the person who may be contacted in order to obtain further information on radiation protection matters or advice in the event of a medical emergency.

### 3. Instructions for Patients

Individual instructions should be prepared for each patient by the licensed physician responsible for the treatment, in consultation with an experienced medical physicist. The instructions should state the radionuclide, the form of the radionuclide and the activity administered, should be designed to suit the patient's own particular travel and domestic arrangements and should be based on the need to minimise the dose to other persons, taking into account the social and economic costs. The instructions should be given to the patient orally and in writing.

The instructions should include, where appropriate, the need to restrict close proximity to other members of the household, especially children, young persons and pregnant women, the importance of good personal hygiene in order to prevent the spread of contamination, and the date when normal social and employment activities may be resumed. The resumption of normal employment should take into account the duration and distance of interaction with other persons in the workplace. Similarly, social activities which involve close proximity to other persons for extended periods, such as going to the cinema, should be distinguished from activities such as shopping, where there are only brief encounters with other persons.

Instruction should also be given, where appropriate, on the precautions to follow in situations such as medical emergencies requiring hospitalisation.

The discharged patient should be provided with a card to be carried by the patient at all times until the date specified. The card should contain the following information:

- the radionuclide administered, the activity administered and date of administration;
- name(s) and contact number(s) of prescribing doctor and/or radiation safety officer or physicist, for emergencies or other hospitalisation;
- the date after which the card is not required.

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**Radiation  
Protection  
Series  
No. #**

**Recommendations  
Discharge of Patients Undergoing Treatment with Radioactive Substances**

## **Annex 1**

### **Maximum activities of radionuclides in sealed forms at which patients may be discharged from hospital**

<b>RADIONUCLIDE</b>	<b>ACTIVITY IN MBq</b>	<b>Note</b>
Caesium-137	none	1
Gold-198	400	-
Iodine-125	2,000	2
Iridium-192	none	1
Palladium-103	10,000	2

#### **Notes:**

1. Sources are to be removed before the patient is discharged from hospital.
2. Because of the relatively long physical half-life of this radionuclide the patient should be instructed to limit periods spent in close proximity to other persons, particularly children or someone who is pregnant, until the administered radionuclide has decayed to at least one-eighth of the activity listed in this Annex. There would normally be no restrictions on the time spent with a person who is at a distance of one metre or more from the patient.

## Annex 2

### Maximum activities of radionuclides in unsealed forms at which patients may be discharged from hospital

RADIONUCLIDE	ACTIVITY IN MBq	Note
Indium-111	400	1
Iodine-131	600	2
Phosphorus-32	1,200	3
Rhenium-188	3,000	1, 4
Samarium-153	4,000	1, 4
Strontium-89	300	2, 4
Yttrium-90	4,000	2, 4

#### Notes:

These notes do not apply to radionuclides in radiopharmaceutical forms that are insoluble or are totally retained in the body, e.g. labelled microspheres or colloids.

1. An incontinent patient should not be discharged to a private dwelling or other non-controlled premises in the first two days after administration of this radionuclide unless monitoring of the patient or of the excreted activity indicates that an earlier discharge date is appropriate.
2. An incontinent patient should not be discharged to a private dwelling or other non-controlled premises in the first week after administration of this radionuclide unless monitoring of the patient or of the excreted activity indicates that an earlier discharge date is appropriate.
3. An incontinent patient should not be discharged to a private dwelling or other non-controlled premises in the first two weeks after administration of this radionuclide unless monitoring of the patient or of the excreted activity indicates that an earlier discharge date is appropriate.
4. In the case of pharmaceutical forms of the radionuclide where there is rapid renal excretion of activity not taken up by the target organ or otherwise immobilised, the patient should remain in hospital or at the clinic until one, or preferably two, urinary voids have occurred. Monitoring of the patient or of the excreted activity may indicate that an earlier or later discharge time is appropriate. The patient should receive appropriate instructions to minimise the spread of contamination from excreta for at least the next 24 hours.

## Annex 3

### Rationale for the Maximum Activities of Radionuclides at which Patients may be Discharged from Hospital

The purpose of the *Recommendations for the Discharge of Patients Undergoing Treatment with Radioactive Substances (2002)* is to provide guidance on the conditions which should be met for the discharge from hospital of a patient who is undergoing treatment with a radioactive substance. The principal criterion is that the effective radiation dose to any member of the general public, including children and the unborn child, should not exceed 1 millisievert (mSv) in a year, excluding exposure from natural background radiation and from medical procedures to the recipient. The 1 mSv dose limit is chosen to be consistent with the NHMRC *Recommendations for limiting exposure to ionizing radiation (1995)*, which set a public exposure limit of 1 mSv in a year (public exposure covers all exposures arising from practices; that is, all exposures that are neither occupational or medical). This limit does not necessarily apply to adult family members or carers who are appropriately informed and knowingly and willingly provide comfort and support to the patient. A dose constraint of 5 mSv is recommended for adult family members and carers, but this criterion need not be rigidly applied in all cases, as for example when a parent is assisting with the care of a sick child.

The approach taken in these *Recommendations*, in order to achieve the above criteria under normal circumstances, is that the dose rate at a distance of 1 metre from the patient undergoing treatment with a radioactive substance should not exceed 25  $\mu\text{Sv}$  per hour at the time of discharge from hospital. It is recognised that the patient does not represent a point-source of activity, and that as a consequence the inverse-square law does not normally apply until distances of at least 3 metres from the patient. It has been shown that, in the case of iodine-131 distributed within a patient, the radiation dose rate at distances from 1 to 3 metres from the patient follows an approximate 'inverse 1.5' power rule'. A radiation dose rate of 25  $\mu\text{Sv}/\text{hour}$  at 1 metre reduces to 9  $\mu\text{Sv}/\text{hour}$  at 2 metres and to 5  $\mu\text{Sv}/\text{hour}$  at 3 metres.

The recommended level of 25  $\mu\text{Sv}/\text{hour}$  at 1 metre from the patient at the time of discharge has been primarily derived from considerations of iodine-131 in the treatment of thyroid disorders. In general, the radiation dose to persons other than the patient will depend upon:

- a. the activity of the radionuclide retained in the patient at the time of discharge;
- b. the specific exposure rate constant of the radionuclide;
- c. the effective half-life of the radionuclide in the body (derived from the biological and physical half-lives);
- d. the shielding by the patient's body; and
- e. the time spent by the person at relevant distances from the patient.

These *Recommendations* do not specify a different external dose rate for each radiopharmaceutical even though the radiation dose received by family members during the course of treatment, will depend on the effective half-life in the patient. Rather, the *Recommendations* require that the period during which radiation safety restrictions should be applied should be varied to reflect the different half-lives.

The doses received by persons who may be close to the patient for only short periods of time (for example, during travel by public transport or shopping) will depend on the external dose rate and the time period of the proximity. Thus, it is recommended that the time of travel by public transport of the discharged patient should not exceed two hours. This is of particular importance where the public transport involves confined adjacent seating at distances of considerably less than 1 metre.

## **Radionuclides in Unsealed Forms**

### **Iodine-131**

The maximum activity of iodine-131 in unsealed forms at which a patient may be discharged from hospital is 600 MBq in these *Recommendations*. The main determining factor in this recommendation was the external dose rate, but potential contamination from excreted activity was also considered. A residual patient activity of 600 MBq of iodine-131 results in an approximate dose rate of 25  $\mu$ Sv/hour at 1 metre given the shielding by the patient's body. The maximum discharge activity for iodine-131 of 600 MBq is unchanged from the previous 1983 *Recommendations*.

The European Commission, Radiation Protection 97, *Radiation Protection following Iodine-131 therapy (exposures due to out-patients or discharged in-patients)*, notes that within the European Union patient discharge levels range from 95 MBq to 800 MBq of iodine-131, but that in most Member States the discharge level is set at between 400 MBq and 600 MBq. The US Regulatory Guide 8.39, *Release of Patients Administered Radioactive Materials*, allows patient release at 1,200 MBq of iodine-131, but under the constraint that the total effective dose to any other individual from the discharged patient is not likely to exceed 5 mSv, which is considerably less stringent than the public exposure limit of 1 mSv adopted in these *Recommendations*.

### **Beta Emitters (Phosphorus-32, Yttrium-90 and Strontium-89)**

External dose rate limits are not applicable to these radionuclides within the patient's body. There is minimal external dose rate from the activities normally administered because the beta radiation is absorbed within the patient's body tissue. The small external dose rate that does exist in some cases is chiefly from bremsstrahlung radiation.

The major concern is from the excreted activity and the provisos for discharge in respect of urinary excretion and for incontinent patients have been stated in the footnotes. These footnotes do not apply to radiopharmaceutical forms that are insoluble or are totally retained in the body. The discharge activity for phosphorus-32 has been retained at 1,200 MBq, but the discharge activity for yttrium-90 has been increased from 1,200 MBq to 4,000 MBq in these *Recommendations*. It has been shown that the external dose rate at 1 metre from

a patient containing 4,400 MBq of yttrium-90 mostly concentrated in the abdominal organs is approximately 5  $\mu\text{Sv}/\text{hour}^2$ .

The discharge maximum activity of 300 MBq for strontium-89 is consistent with the relatively long physical and biological half-life of this radionuclide, and should impose no practical restrictions since the administered doses are generally less than this.

### **Samarium-153**

The reported exposure rates at 1 metre from patients 1-2 hours after the administration of 3,700 MBq of samarium-153-EDTMP are 20-30  $\mu\text{Sv}/\text{hour}^3$ . This, taken together with the further recommendation that the patient should not be discharged until one, or preferably two, urinary voids have occurred is consistent with a recommended maximum activity of 4,000 MBq.

### **Rhenium-188**

The exposure rate at 1 metre from a patient containing 3,000 MBq of rhenium-188 is less than 20  $\mu\text{Sv}/\text{hour}$  (assuming a point source and allowing for patient shielding). However, because of the high energy beta emission the possibility of external contamination needs to be considered. Where excretable forms are administered, the time for discharge of incontinent patients to non-controlled premises should take into account the 17 hour physical half-life of this radionuclide.

### **Indium-111**

The exposure rate at 1 metre from a patient containing 400 MBq of indium-111 is approximately 25  $\mu\text{Sv}/\text{hour}^4$ .

## **Radionuclides in Sealed Forms**

### **Caesium-137 and Iridium-192**

Caesium-137 and iridium-192 emit penetrating gamma radiation and have significantly long physical half-lives (30.2 years and 73.8 days, respectively). Sealed sources of these radionuclides present a major radiation hazard if dislodged from the patient or otherwise lost and are to be removed from the patient before discharge from hospital.

### **Gold-198**

The recommended maximum discharge activity of 400 MBq for gold-198 corresponds to an exposure rate of approximately 25  $\mu\text{Sv}/\text{hour}$  at 1 metre (calculated from the unshielded gamma dose rate with allowance made for limited shielding by the patient's body).

### **Iodine-125 and Palladium-103**

The 'no limit' maximum discharge activity for iodine-125 (sealed) of the 1983 *Recommendations* is not useful. The major factor determining the external exposure rate from implanted iodine-125 and palladium-103 is the depth of implantation from the skin surface, which is primarily determined by the patient's weight. Studies have shown that, for the activity range of these

radionuclides commonly administered the dose rate at a distance of 1 metre is less than 0.3  $\mu\text{Sv}/\text{hour}^5$ .

The recommended maximum discharge activity of 2,000 MBq for iodine-125 and 10,000 MBq for palladium-103 are expected to cover activities administered in current practice.

The need for the discharged patient to limit periods spent in close proximity to other persons, including pregnant women, until the administered radionuclide has decayed to at least one-eighth of the recommended maximum discharge activity is emphasised in a footnote. This is due to the high dose rate at the skin surface of the patient in the proximity of the implant.

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## Annex 4

### ARPANSA Radiation Protection Series Publications

ARPANSA has taken over responsibility for the administration of the former NHMRC Radiation Health Series of publications and for the codes developed under the *Environment Protection (Nuclear Codes) Act 1978*. The publications are being progressively reviewed and republished as part of the *Radiation Protection Series*. Current publications in the *Radiation Protection Series* are:

- RPS 1. Recommendations for Limiting Exposure to Ionizing Radiation (1995) and National Standard for Limiting Occupational Exposure to Ionizing Radiation (republished 2002)
- RPS 2. Code of Practice for the Safe Transport of Radioactive Material (2001)
- RPS ?. Radiation Protection Standard for Maximum Exposure Levels to Radiofrequency Fields – 3 kHz to 300 GHz (2002)
- RPS ? Recommendations on the Discharge of Patients undergoing Treatment with Radioactive Substances (2002)

Those publications from the NHMRC Radiation Health Series and the Environment Protection (Nuclear Codes) Act Series that are still current are:

#### RADIATION HEALTH SERIES

- RHS 2. Code of practice for the design of laboratories using radioactive substances for medical purposes (1980)
- RHS 3. Code of practice for the safe use of ionizing radiation in veterinary radiology: Parts 1 and 2 (1982)
- RHS 4. Code of practice for the safe use of radiation gauges (1982)
- RHS 8. Code of nursing practice for staff exposed to ionizing radiation (1984)
- RHS 9. Code of practice for protection against ionizing radiation emitted from X-ray analysis equipment (1984)
- RHS 10. Code of practice for safe use of ionizing radiation in veterinary radiology: part 3-radiotherapy (1984)
- RHS 11. Code of practice for the safe use of soil density and moisture gauges containing radioactive sources (1984)
- RHS 12. Administration of ionizing radiation to human subjects in medical research (1984)
- RHS 13. Code of practice for the disposal of radioactive wastes by the user (1985)
- RHS 14. Recommendations for minimising radiological hazards to patients (1985)
- RHS 15. Code of practice for the safe use of microwave diathermy units (1985)
- RHS 16. Code of practice for the safe use of short wave (radiofrequency) diathermy units (1985)
- RHS 17. Procedure for testing microwave leakage from microwave ovens (1985)
- RHS 18. Code of practice for the safe handling of corpses containing radioactive materials (1986)

- RHS 19. Code of practice for the safe use of ionizing radiation in secondary schools (1986)
- RHS 20. Code of practice for radiation protection in dentistry (1987)
- RHS 21. Revised statement on cabinet X-ray equipment for examination of letters, packages, baggage, freight and other articles for security, quality control and other purposes (1987)
- RHS 22. Statement on enclosed X-ray equipment for special applications (1987)
- RHS 23. Code of practice for the control and safe handling of radioactive sources used for therapeutic purposes (1988)
- RHS 24. Code of practice for the design and safe operation of non-medical irradiation facilities (1988)
- RHS 25. Recommendations for ionization chamber smoke detectors for commercial and industrial fire protection systems (1988)
- RHS 26. Policy on stable iodine prophylaxis following nuclear reactor accidents (1989)
- RHS 28. Code of practice for the safe use of sealed radioactive sources in bore-hole logging (1989)
- RHS 29. Occupational standard for exposure to ultraviolet radiation (1989)
- RHS 30. Interim guidelines on limits of exposure to 50/60Hz electric and magnetic fields (1989)
- RHS 31. Code of practice for the safe use of industrial radiography equipment (1989)
- RHS 32. Intervention in emergency situations involving radiation exposure (1990)
- RHS 34. Safety guidelines for magnetic resonance diagnostic facilities (1991)
- RHS 35. Code of practice for the near-surface disposal of radioactive waste in Australia (1992)
- RHS 36. Code of practice for the safe use of lasers in schools (1995)
- RHS 37. Code of practice for the safe use of lasers in the entertainment industry (1995)
- RHS 38. Recommended limits on radioactive contamination on surfaces in laboratories (1995)

**ENVIRONMENT PROTECTION (NUCLEAR CODES) ACT SERIES**

Code of Practice on the Management of Radioactive Wastes from the Mining and Milling of Radioactive Ores 1982

Code of Practice on Radiation Protection in the Mining and Milling of Radioactive Ores 1987

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# Index

[to be added]

**Radiation  
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***Recommendations  
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