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**HEALTH**

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HE301

## RADIATION SAFETY ACT 1975

## RADIATION SAFETY (GENERAL) AMENDMENT REGULATIONS 1997

Made by the Lieutenant-Governor and deputy of the Governor in Executive Council.

**Citation**

1. These regulations may be cited as the *Radiation Safety (General) Amendment Regulations 1997*.

**Principal regulations**

2. In these regulations the *Radiation Safety (General) Regulations 1983\** are referred to as the principal regulations.

[\* Reprinted as at 4 April 1995.  
For amendments to 3 July 1997 see 1996 Index to Legislation of  
Western Australia, Table 4, p. 225.]

**Regulation 3 amended**

3. (1) Regulation 3 (1) of the principal regulations is amended —
- (a) by deleting the definitions of “dose equivalent” and “dose equivalent limit”;
  - (b) in the definition of “designated radiation worker” by deleting “dose equivalent limits specified in Schedule I” and substituting the following —  
“ effective or equivalent dose limits ”;
  - (c) by deleting the definition of “sievert” and substituting the following definition —  
“  
“**sievert**” means SI unit of effective dose or equivalent dose;  
”;

and

- (d) by inserting in the appropriate alphabetical positions the following definitions —

“

**“effective dose”** means sum of the weighted equivalent doses in all organs and tissues of the body calculated using the formula —

$$E = \sum_T w_T H_T$$

where —

E is the effective dose;

$w_T$  is the tissue weighting factor for the organ or tissue T;

$H_T$  is the equivalent dose in the organ or tissue T;

**“effective dose limit”** means dose limit specified in item 1 (1), (3) or (4) of Schedule I;

**“equivalent dose”** means the sum of the weighted absorbed doses in an organ or tissue calculated using the formula —

$$H_T = \sum_R w_R D_{T,R}$$

where —

$H_T$  is the equivalent dose in the organ or tissue T;

$w_R$  is the radiation weighting factor for the radiation R;

$D_{T,R}$  is the absorbed dose from the radiation R averaged over the organ or tissue T;

**“equivalent dose limit”** means dose limit specified in item 1 (2) (a) of Schedule I;

**“field site”** means any place —

- (a) which is not a premises;
- (b) which is used by the registrant of a premises in connection with the premises; and
- (c) at which radiation workers operate or use irradiating apparatus or radioactive substances that have been taken temporarily to that site;

**“radiation weighting factor”** means factor set out in Table 1 of the publication entitled “Recommendations for limiting exposure to ionizing radiation (1995)”, approved by the NHMRC in June 1995, which modifies the absorbed dose in an organ or tissue to yield the equivalent dose in that organ or tissue;

**“tissue weighting factor”** means factor set out in Table 2 of the publication entitled “Recommendations for limiting exposure to ionizing radiation (1995)”, approved by the NHMRC in June 1995, by which the equivalent dose in an organ or tissue is modified to yield a component of effective dose;

”

(2) Regulation 3 (3) of the principal regulations is amended by deleting "Health Department of the Public Service of the State or of the State X-ray Laboratory (Physics Division) or at the State Reference Library." and substituting the following —

"

Radiation Health Section of the Environmental Health Service of the Health Department of Western Australia.

".

#### **Regulation 7B amended**

4. Regulation 7B of the principal regulations is amended in subregulations (4) and (5) in each case by deleting "of the Act".

#### **Regulation 10B inserted**

5. After regulation 10A of the principal regulations the following regulation is inserted —

"

#### **Employment of radiation workers under 16 years of age prohibited**

10B. (1) A person shall not employ a person under 16 years of age as a radiation worker.

(2) It is a defence to a prosecution for an offence against subregulation (1) to prove that the defendant believed on reasonable grounds that the person employed was 16 years of age or older.

".

#### **Regulation 11 amended**

6. Regulation 11 (2) (b) of the principal regulations is deleted and the following paragraph is substituted —

"

(b) if the effective dose or estimated effective dose of ionising radiation received by the radiation worker has been such as to require action to be taken under regulation 15 or the radiation worker's exposure or estimated exposure to non-ionising radiation exceeds the appropriate maximum permissible exposure level, include in the report referred to in paragraph (a) particulars of the circumstances leading to that dose or exposure, as the case requires.

".

#### **Regulation 15 amended**

7. (1) Regulation 15 (4) of the principal regulations is amended by deleting "subsection" and substituting the following —

" subregulation ".

(2) After regulation 15 (4) of the principal regulations the following subregulation is inserted —

"

(5) This regulation does not apply to the exposure to radiation of those parts of the human body necessarily exposed to radiation in the course of any diagnosis or treatment —

(a) conducted or prescribed by a medical practitioner, dentist, chiropractor, podiatrist or physiotherapist; and

(b) conducted in accordance with the Act and these regulations.

".

**Regulation 18 amended**

8. (1) Regulation 18 (1) of the principal regulations is amended —

(a) by deleting “person in whose name any premises are registered —” and substituting the following —

“ registrant of any premises — ”;

(b) in paragraph (a) —

(i) by deleting “in writing”; and

(ii) by deleting subparagraph (i) and substituting the following subparagraph —

“  
 (i) on behalf of the registrant, the duties imposed on the registrant by regulations 19 (2), 19A (2), 25 and 26;  
 ”;

and

(c) by deleting paragraph (b) and substituting the following paragraph —

“  
 (b) may, and if directed to do so by the Council shall, appoint a radiation safety committee to supervise the performance by the radiation safety officer appointed by that registrant of the officer’s duties under paragraph (a).  
 ”.

(2) After regulation 18 (1) of the principal regulations the following subregulations are inserted —

“  
 (1a) An appointment made under subregulation (1) (a) or (b) is to be made in writing, however a failure to make the appointment in writing does not affect the validity of the appointment.

(1b) A registrant shall ensure that a radiation safety officer appointed by that registrant carries out the duties imposed on the officer under regulation 19 (3).  
 ”.

(3) Regulation 18 (2) of the principal regulations is amended —

(a) by deleting “person in whose name any premises are registered” and substituting the following —

“ registrant ”; and

(b) in paragraph (a) by deleting “(1) and”.

(4) Regulation 18 (3) of the principal regulations is amended by deleting “person in whose name the premises concerned are registered” and substituting the following —

“ registrant ”.

(5) Regulation 18 (4) of the principal regulations is amended —

(a) by deleting “person” in both places where it occurs and substituting in each place the following —

“ registrant ”; and

(b) in paragraph (a) by deleting “19 (1) and (2)” and substituting the following —

“ 19 (2), 19A (2), 25 or 26 ”.

(6) After regulation 18 (5) of the principal regulations the following subregulations are inserted —

“

(6) A registrant shall, on appointing a radiation safety officer, notify that officer in writing of —

(a) the duties —

(i) which the radiation safety officer is required to carry out on behalf of the registrant under regulation 18 (1) (a) (i); and

(ii) imposed on the radiation safety officer by regulation 19 (3);

and

(b) any conditions, restrictions or limitations which are imposed under section 36 on the registration of —

(i) the premises; or

(ii) any irradiating apparatus or electronic product on the premises or any field sites under the control of the registrant.

(7) The registrant shall in writing notify the radiation safety officer appointed by that registrant if the duties referred to in subregulation (6) (a) or the conditions, restrictions or limitations referred to in subregulation 6 (b) change.

”.

#### Regulation 19 amended

9. (1) Regulation 19 (1) of the principal regulations is repealed.

(2) Regulation 19 (2) of the principal regulations is amended —

(a) by deleting “person in whose name any premises are registered shall” and substituting the following —

“

registrant of any premises shall, in relation to those premises and any field sites under the control of the registrant —

”;

(b) in paragraph (a) by deleting “on those premises”;

(c) by deleting paragraph (b);

(d) in paragraph (c) —

(i) by deleting “persons working with radioactive substances, irradiating apparatus or electronic products on those premises and all persons authorized by him to visit areas on the premises where radiation may be present are —” and substituting the following —

“

each radiation worker and each person authorized by the registrant to visit areas where radiation may be present is —

”;

and

(ii) in subparagraph (ii) by deleting “their” and substituting the following —

“ the person’s ”;

- (e) after paragraph (c) by deleting the "and" after that paragraph and inserting the following —

- "
- (ca) ensure that each radiation worker is —
- (i) provided with copies of, or access to, instruction or operating manuals for all devices or things containing radioactive substances and for all irradiating apparatus and electronic products which that worker uses or operates;
- (ii) given specific instructions on how to use the radioactive substances and how to use or operate the irradiating apparatus and electronic products which that worker uses or operates so as to minimize any potential exposure to radiation of the worker, other employees or the public;
- (iii) instructed in radiation safety; and
- (iv) familiar with any working rules prepared under subregulation (3) (a) for the radioactive substances, irradiating apparatus and electronic products which that worker uses or operates,

to a level appropriate for the worker's functions;

- (cb) ensure that each radiation worker is —
- (i) licensed;
- (ii) supervised by, and under the direction of, a person who is licensed; or
- (iii) exempt from the requirement to be licensed; and

”;

and

- (f) in paragraph (d) —

- (i) by deleting "notify in writing the Council of the existence of —" and substituting the following —

"

notify the Council in writing as soon as practicable after becoming aware of any of the following situations —

”;

and

- (ii) by deleting subparagraph (iii) and substituting the following subparagraph —

"

(iii) a radiation hazard which emanates from a source of radiation (whether or not on the premises or field site) which is not under the control of the registrant.

”.

- (3) Regulation 19 (3) of the principal regulations is repealed and the following subregulations are substituted —

"

(3) The radiation safety officer appointed by a registrant shall, in relation to that registrant's premises and any field sites under the control of that registrant —

- (a) prepare working rules for the safe use and operation of radioactive substances, irradiating apparatus and electronic products if —
- (i) directed to do so in writing by the Council;

- (ii) required to do so under these regulations; or
  - (iii) required to do so by a condition, restriction or limitation imposed under section 36 on the registration of those premises or of any irradiating apparatus or electronic product;
- (b) ensure that —
- (i) no radioactive substances are manufactured, used or stored; and
  - (ii) no irradiating apparatus or electronic products are installed,
- in any place unless —
- (iii) the Council has approved plans for that place which set out details of —
    - (I) its dimensions;
    - (II) the materials used, or to be used, in its construction;
    - (III) if unsealed radioactive substances are to be used in that place, the ventilation, drainage, sewage disposal and lighting systems installed or to be installed;
    - (IV) its proximity to other parts of the premises or field site and to places outside the premises or field site and the likely effect on them of the proposed use of that place; and
    - (V) any other details requested by the Council;
- and
- (iv) that place conforms to those plans;
- (c) ensure that all appropriate shielding, safety devices, protective equipment, radiation monitoring and radiation surveying devices required by these regulations or by a condition, restriction or limitation imposed under section 36 to be installed or available are —
- (i) installed or available;
  - (ii) regularly tested and serviced; and
  - (iii) repaired or replaced when necessary;
- (d) make recommendations to the registrant on the need or otherwise for the medical examination of radiation workers;
- (e) maintain all records required by the Act or these regulations to be kept by the registrant;
- (f) ensure that any conditions, restrictions or limitations imposed under section 36 on the registration of —
- (i) the premises; or
  - (ii) any irradiating apparatus or electronic product, of which the radiation safety officer has been notified, are complied with;
- (g) notify the registrant of any suspected or known contravention of —
- (i) these regulations; or

- (ii) any condition, restriction or limitation imposed under section 36 on the registration of —
  - (I) the premises; or
  - (II) any irradiating apparatus or electronic product,
 as soon as practicable after becoming aware of it;
- (h) if any person is unnecessarily exposed to radiation, evaluate the radiation dose received by that person in accordance with any directions given by the Council; and
- (i) notify the registrant of —
  - (i) the exposure of any person (other than a patient exposed for diagnostic or therapeutic purposes) to a radiation dose which exceeds the limits calculated under regulation 15; or
  - (ii) any abnormal or unplanned radiation exposure as set out in regulation 19A (1).

(4) A radiation worker shall not use any radioactive substances or use or operate any irradiating apparatus or electronic product, the registration of which is required by section 28, without the prior permission of the registrant.

#### Regulation 19A inserted

10. After regulation 19 of the principal regulations the following regulation is inserted —

“

#### Abnormal or unplanned radiation exposures

**19A.** (1) An abnormal or unplanned radiation exposure occurs if —

- (a) during the administration of a radioactive substance for diagnostic purposes, the quantity of the substance administered exceeds the quantity prescribed by the responsible licensee by 50% or more;
- (b) during the administration of radiation for therapeutic purposes, the radiation dose or the energy or power imparted to the patient differs from that prescribed by the responsible licensee by 15% or more;
- (c) there is an unintended emission of radiation as a result of damage to, or the malfunction of —
  - (i) an irradiating apparatus;
  - (ii) an electronic product;
  - (iii) a device or thing containing a radioactive substance; or
  - (iv) a device controlling the application of radiation from a radioactive substance;
- (d) a radioactive substance which was not prescribed by a licensee for diagnostic or therapeutic purposes, is used for one of those purposes;
- (e) a surface, substance or material is contaminated by a radioactive substance resulting from the spillage of more than 10 times the exempt quantity of that substance specified in Schedule V; or

- (f) a radioactive substance is unlawfully released into the environment in a concentration exceeding the levels specified in regulation 31.
- (2) As soon as practicable after becoming aware of any abnormal or unplanned radiation exposure occurring on the premises or a field site, the registrant shall —
- (a) notify the Council in writing of the exposure;
  - (b) ascertain the cause of the exposure;
  - (c) if the cause of the exposure was damage to, or the malfunction of, any irradiating apparatus, electronic product, device or thing referred to in subregulation (1) (c) —
    - (i) cause the apparatus, product, device or thing to be repaired or removed from the premises or field site and taken to a safe place; and
    - (ii) ensure that, until it is so repaired or removed —
      - (I) it is not used; or
      - (II) if the damage or malfunction can be isolated without adversely affecting the safety or performance of the apparatus, product, device or thing, that it is so isolated;
- and
- (d) inform any person who may have been exposed to the abnormal or unplanned radiation exposure of —
    - (i) the occurrence of the exposure; and
    - (ii) the actions taken to rectify the situation and to prevent a recurrence.
- (3) A notification given under subregulation (2) (a) is to include details of —
- (a) the nature, type and cause of the abnormal or unplanned radiation exposure;
  - (b) the location and time of, and the people involved in, its occurrence;
  - (c) the area over which any radioactive substance may have been dispersed;
  - (d) any personal injury or exposure sustained by any person, including an assessment of the radiation dose received; and
  - (e) the actions taken to rectify the situation and to prevent a recurrence.
- (4) In subregulation (2) (c) —
- “repaired” means repaired by an approved person and certified by that person as functioning correctly and fit to be returned to use.

”.

**Regulation 21 amended**

11. Regulation 21 (3) of the principal regulations is amended by deleting “subsection” and substituting the following —

“ subregulation ”.

**Regulation 24 amended**

12. Regulation 24 of the principal regulations is amended —

- (a) in subregulation (1) (a) by deleting “dose equivalent limit” and substituting the following —

“  
effective dose limit, equivalent dose limit or dose limit  
specified in item 1 (2) (b) of Schedule I, as the case requires ”;

and

- (b) in subregulation (2) by deleting “(5)” and substituting the following —

“ (4) ”.

**Regulation 27 amended**

13. Regulation 27 (2) of the principal regulations is amended by deleting “publication entitled “The Code of Practice for the Control and Safe Handling of Sealed Radioactive Sources used in Industrial Radiography” approved by the NHMRC at its 66th Session in May 1968.” and substituting the following —

“  
NHMRC publication entitled “Code of Practice for the Safe Use of  
Industrial Radiography Equipment 1989”.

**Regulation 28 amended**

14. Regulation 28 of the principal regulations is amended —

- (a) in subregulation (1) (b) by deleting “publication entitled “The Code of Practice for the Control and Safe Handling of Sealed Radioactive Sources used in Industrial Radiography” approved by the NHMRC at its 66th Session in May 1968” and substituting the following —

“  
NHMRC publication entitled “Code of Practice for the Safe  
Use of Industrial Radiography Equipment 1989”

- (b) in subregulation (3) (c) by deleting “publication entitled “The Code of Practice for the Control and Safe Handling of Sealed Radioactive Sources used in Industrial Radiography” approved by the NHMRC at its 66th Session in May 1968” and substituting the following —

“  
NHMRC publication entitled “Code of Practice for the Safe  
Use of Industrial Radiography Equipment 1989”

and

- (c) in subregulation (3) (d) by deleting “telegraphy” and substituting the following —

“ teletherapy ”.

**Regulation 31A amended**

15. Regulation 31A (3) of the principal regulations is amended by deleting “subsection” and substituting the following —

“ subregulation ”.

**Regulation 33 amended**

16. Regulation 33 (2) (b) of the principal regulations is amended by deleting "except than in accordance with the authority in writing of the Council." and substituting the following —

"  
unless the Council authorizes the licensee, in writing, to make allowances for either or both of those matters.  
".

**Schedule I amended**

17. Schedule I to the principal regulations is amended —

(a) in the heading —

(i) by deleting "DOSE EQUIVALENT" and substituting the following —

" DOSE "; and

(ii) by deleting "[Regulation 3]" and substituting the following —

" [Regulations 3 and 24] ";

and

(b) by deleting item 1 and substituting the following item —

"

1. (1) The dose limits for radiation workers are as follows —

(a) in any period of 5 years, an average effective dose of 20 millisieverts per year;

(b) in any period of 12 months, an effective dose of 50 millisieverts;

(c) in any period of less than 12 months but not less than one month, an effective dose of the amount which is the product of 50 millisieverts and the ratio of that period in weeks to 52 weeks; and

(d) in any period of less than one month, an effective dose of 1/12th of 50 millisieverts.

(2) The dose limits for a radiation worker who has notified her employer that she is pregnant are —

(a) for external radiation exposure, an equivalent dose to the surface of her abdomen for the remainder of her pregnancy of 2 millisieverts; and

(b) for internal radiation exposure, 1/20th of the Annual Limit on Intake (ALI) determined by reference to the values set out in the publication entitled "Dose Coefficients for Intakes of Radionuclides by Workers" being ICRP Publication 68 published for the International Commission on Radiological Protection.

(3) The dose limits for persons other than radiation workers are as follows —

(a) in any period of 5 years, an average effective dose of 1 millisievert per year;

(b) in any period of 12 months, an effective dose of 5 millisieverts; and

- (c) in respect of an area which such persons might continuously occupy —
  - (i) an effective dose of 20 microsieverts in any 1 hour; and
  - (ii) an effective dose of 250 microsieverts in any period of 7 days.

(4) The dose limit in a single planned special exposure referred to in regulation 24 (2) is an effective dose of 100 millisieverts.

(5) For the purposes of determining the effective doses referred to in subitems (1), (3) and (4), an effective dose from x-rays or gamma rays shall be assumed to be the absorbed dose in air measured by a properly calibrated instrument or device at or near the surface of the body in the region of the highest anticipated exposure rate and multiplied by the modifying factors.

(6) If it is known that a part or parts only of the body has or have been exposed to ionising radiation, or that the body was not uniformly exposed, the effective dose for the person exposed may be determined from the equivalent doses received by the organs or tissues exposed.

#### **Schedule IV amended**

18. Schedule IV to the principal regulations is amended by deleting “, 20” and substituting the following —

“ , 22 ”.

#### **Schedule V amended**

19. Schedule V to the principal regulations is amended in the note at the end of that Schedule —

- (a) by deleting “5 (b)” in both places where it occurs and substituting the following —
  - “ 5 (1) (b) ”; and
- (b) by deleting “, 31 (f)”.

#### **Schedule IX amended**

20. Schedule IX to the principal regulations is amended in item 8 (a) by deleting “publication entitled “Code of Practice for the Safe Use of X-ray Analysis Equipment” approved by the NHMRC at its 68th session in May 1969;” and substituting the following —

“  
NHMRC publication entitled “Code of Practice for Protection against Ionizing Radiation emitted from X-ray Analysis Equipment 1984”;  
”

#### **Schedule X amended**

21. Schedule X to the principal regulations is amended —

- (a) in item 1 —
  - (i) by deleting “person in whose name those premises are registered” and substituting the following —
    - “ registrant ”; and

- (ii) by deleting "publication entitled "The Code of Practice for the Safe Use of X-ray Analysis Equipment" approved by the NHMRC at its 68th session in May 1969." and substituting the following —

"  
 NHMRC publication entitled "Code of Practice for Protection against Ionizing Radiation emitted from X-ray Analysis Equipment 1984".  
 ";

and

- (b) in item 2 by deleting the subitem designation "(3)" and substituting the following item designation —

" 3. "

#### **Schedule XI amended**

**22.** Schedule XI to the principal regulations is amended —

- (a) in item 2 (1) (b) (ii) and (2) (b) by deleting "approved expert" in each place where it occurs and substituting the following —

" qualified expert "; and

- (b) in item 5 by deleting "publication entitled "The Code of Practice for the Safe Use of X-ray Analysis Equipment" approved by the NHMRC at its 68th session in May 1969." and substituting the following —

"  
 NHMRC publication entitled "Code of Practice for Protection against Ionizing Radiation emitted from X-ray Analysis Equipment 1984".  
 ".

#### **Schedule XII repealed**

**23.** Schedule XII to the principal regulations is repealed.

#### **Schedule XVI amended**

**24.** Schedule XVI to the principal regulations is amended —

- (a) in item 1 in the definition of "equipment" by deleting "telegraphy" and substituting the following —

" teletherapy "; and

- (b) in item 2 (1) —

- (i) by deleting "dose equivalent limit" and substituting the following —

" effective dose "; and

- (ii) by deleting "limits prescribed by Schedule I" and substituting the following —

" appropriate effective dose limit ".

#### **Various references to dose equivalent and dose equivalent limit changed**

**25.** (1) The provisions of the principal regulations referred to in the Table to this subregulation are amended by deleting "dose equivalent" wherever it occurs and substituting the following —

" effective dose ".

## TABLE

11 (2) (a) (i)	11 (3) (twice)
11 (2) (a) (iii)	25 (9) (3 times)

(2) The provisions of the principal regulations referred to in the Table to this subregulation are amended by deleting "a dose equivalent" wherever it occurs and substituting the following —

" an effective dose ".

## TABLE

5 (4) (a)	15 (3) (a) (twice)
5 (5) (b)	30 (a) (ii)
6 (3) (b)	30 (d)
15 (1) (a) (twice)	31 (1)
15 (2) (a) (twice)	31 (2)

(3) The provisions of the principal regulations referred to in the Table to this subregulation are amended by deleting "estimated dose equivalent" wherever it occurs and substituting the following —

" estimated effective dose ".

## TABLE

15 (1) (a) (4 times)	15 (3) (a) (3 times)
15 (2) (a) (3 times)	

(4) The provisions of the principal regulations referred to in the Table to this subregulation are amended by deleting "that dose equivalent" wherever it occurs and substituting the following —

" that effective dose ".

## TABLE

15 (1) (a) (twice)	15 (3) (a)
15 (2) (a)	

(5) The provisions of the principal regulations referred to in the Table to this subregulation are amended by deleting "dose equivalent limit" wherever it occurs and substituting the following —

" effective dose limit ".

## TABLE

5 (4) (a)	15 (3) (a)
5 (5) (b)	24 (2)
6 (3) (b)	30 (a) (ii)
5 (5) (b)	30 (d)
15 (1) (a)	31 (1)
15 (2) (a)	31 (2)

By Command of the Lieutenant-Governor and deputy of the Governor,

J. PRITCHARD, Clerk of the Executive Council.