Province of Alberta

RADIATION PROTECTION ACT

RADIATION PROTECTION REGULATION

Alberta Regulation 182/2003

With amendments up to and including Alberta Regulation 144/2013

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Note

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(Consolidated up to 144/2013)

ALBERTA REGULATION 182/2003

Radiation Protection Act

RADIATION PROTECTION REGULATION

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Interpretation

1(1) In this Regulation,

(a) "authorized radiation health administrative organization" means the appropriate authorized radiation health administrative organization within the meaning of the *Radiation Health Administration Regulation* (AR 49/96);

(b) "designated radiation equipment" means ionizing radiation equipment and non-ionizing radiation equipment designated in section 8;

(c) "Director" means the Director of Radiation Health appointed under the *Public Service Act* and, where and to the extent that a power, duty or function in question is delegated to an authorized radiation health administrative organization by the *Radiation Health Administration Regulation* (AR 49/96), includes that organization;

(c.1) "effective dose" means the sum for all irradiated tissues and organs, of the equivalent dose, in millisieverts, for each tissue or organ multiplied by the appropriate tissue weighting factor, as determined in accordance with the 2007 Recommendations of the International Commission on Radiological Protection. ICRP Publication 103. Ann. ICRP 37 (2-4);

(c.2) "equivalent dose" means the amount of energy of ionizing radiation, in millisieverts, absorbed in a unit of mass of irradiated tissue or organ multiplied by the appropriate radiation weighting factor, as determined in accordance with the 2007 Recommendations of the International Commission on Radiological Protection. ICRP Publication 103. Ann. ICRP 37 (2-4);

(d) "millisievert" ("mSv") means a derived unit of effective dose and equivalent dose for ionizing radiation;

(d.1) "National Dose Registry" means the centralized record-keeping system containing the dose information of radiation workers in Canada that is maintained by Health Canada;

(e) repealed AR 144/2013 s2;

(f) "operator" means a person who operates radiation equipment;

(g) "radiation worker" means a worker who uses or is directly involved in the use of ionizing designated radiation equipment or an ionizing radiation source;

(h) "registration certificate" means any instrument issued by the Director authorizing the installation or operation, as the case may be, of designated radiation equipment;

(h.1) "rolling 5 calendar years" means, in reference to an exposure period, a period consisting of the current calendar year and the 4 most recent full calendar years;

(i) "use", in relation to radiation equipment, a radiation source or a radiation facility, means use, operate, handle, install, calibrate, test, demonstrate, service, repair or maintain;

(j) "user" means a person who uses radiation equipment, a radiation source or a radiation facility;

(k) "x-ray equipment" means a device or class of devices that is capable of producing x-rays artificially.

(2) All reference in this Regulation to a code or standard is to be taken to refer to the latest version of that code or standard, or to any subsequent replacement that ultimately succeeds that original code or standard, as amended to date.

AR 182/2003 s1;144/2013

Part 1
General Provisions

Prohibited radiation equipment

2 For the purposes of section 11(1) of the Act, the use of the following radiation equipment is prohibited:

(a) hand-held fluoroscopes;

(b) shoe fitting x-ray fluoroscopes;

(c) photofluorographic units (including mass miniature chest x-ray units);

(d) fluoroscopic x-ray equipment without image intensification.

Maximum exposure limits for ionizing radiation

3(1) An owner of and an employer who uses radiation equipment or a radiation source that produces ionizing radiation shall ensure both that

(a) exposure of any person to ionizing radiation is kept as low as is reasonably achievable (ALARA), taking into account economic and social factors, and

(b) no person is exposed to the following:

(i) ionizing radiation in excess of any of the applicable maximum effective dose limits specified in Table 1 of Schedule 1;

(ii) ionizing radiation in excess of any of the applicable maximum equivalent dose limits specified in Table 2 of Schedule 1.

(2) A user of radiation equipment or a radiation source shall not expose any person, including himself or herself, to the following:

(a) an effective dose of ionizing radiation in excess of any of the applicable maximum effective dose limits specified in Table 1 of Schedule 1;

(b) an equivalent dose of ionizing radiation in excess of any of the applicable maximum equivalent dose limits specified in Table 2 of Schedule 1.

(3) The maximum dose limits referred to in subsections (1)(b) and (2) include exposure to all sources of ionizing radiation, including radiation sources governed by the *Nuclear Safety and Control Act* (Canada) and the regulations under that Act, but do not include exposure to

(a) medical or dental radiation when the person is

(i) a patient, or

(ii) a participant in an ethical research program recognized by the Director,

or

(b) natural background radiation.

(4) In recognizing an ethical research program for the purposes of subsection (3)(a), the Director is not required to evaluate the quality of any program and no liability attaches to the Director or

the Crown for anything the Director did or did not do in that regard in good faith.

AR 182/2003 s3;74/2004;144/2013

Monitoring of worker ionizing radiation exposure

4(1) An employer shall ensure that

(a) the following persons who use or are exposed to the use of any ionizing radiation equipment described in subsection (2) are provided with and use an appropriate device, provided by a dosimetry service provider licensed by the Canadian Nuclear Safety Commission, to monitor their personal exposure to ionizing radiation:

(i) a radiation worker;

(ii) a student undergoing a course of instruction involving the use of ionizing radiation equipment,

(b) the records obtained from the monitoring are kept for at least 5 years,

(c) the workers are informed of and have access to these records, and

(d) the dose of a radiation worker as determined by monitoring pursuant to clause (a) is reported to the National Dose Registry.

(2) The ionizing radiation equipment referred to in subsection (1)(a) is

(a) diagnostic or therapeutic x-ray equipment used by medical, dental, chiropractic, veterinary or other health professionals,

(b) particle accelerators,

(c) industrial x-ray equipment,

(d) irradiation x-ray equipment, and

(e) any other ionizing radiation equipment for which the registration certificate requires monitoring of the personal exposure of radiation workers.

AR 182/2003 s4;144/2013

Pregnant radiation workers

5(1) A pregnant woman who is or who becomes a radiation worker shall forthwith inform her employer in writing of her pregnancy.

(2) After being informed of a radiation worker's pregnancy, the employer shall reassess the worker's employment duties or training activities, as the case may be, and modify the duties or activities, where reasonable to do so, to ensure that the worker's effective dose of ionizing radiation does not exceed the applicable maximum effective dose limits specified in Table 1 of Schedule 1.

AR 182/2003 s5;144/2013

Minimum age for certain users

6 A person shall not allow another person who has not yet reached the age of 18 years to use ionizing designated radiation equipment or an ionizing radiation source except where

(a) that other person is a student undergoing a course of instruction involving the use of such equipment or source, and

(b) the use forms part of that course and is conducted under the direct supervision of a competent worker.

AR 182/2003 s6;144/2013

Maximum exposure limits for non-ionizing radiation

7(1) An owner of and an employer who uses radiation equipment that produces non-ionizing radiation shall ensure that no person is exposed to non-ionizing radiation in excess of any of the applicable maximum exposure limits specified

(a) in Table 1 of Schedule 2 in respect of exposure to laser radiation, and

(b) in Table 2 of Schedule 2 in respect of exposure to radiofrequency electromagnetic fields.

(2) A user of radiation equipment that produces non-ionizing radiation shall not expose any person, including himself or herself, to non-ionizing radiation in excess of any of the applicable maximum exposure limits specified

(a) in Table 1 of Schedule 2 in respect of exposure to laser radiation, and

(b) in Table 2 of Schedule 2 in respect of exposure to radiofrequency electromagnetic fields.

(3) Subsections (1)(a) and (2)(a) do not apply to exposure to non-ionizing medical or dental radiation when the person exposed is

(a) a patient, or

(b) a participant in an ethical research program recognized by the Director.

AR 182/2003 s7;144/2013

Part 2
Registration Certificates

Designated radiation equipment

8 The following radiation equipment is designated as requiring a registration certificate in accordance with this Part unless it is in transit, in storage or incapable of being energized:

(a) diagnostic or therapeutic x-ray equipment used by medical, dental, chiropractic, veterinary or other health professionals;

(b) particle accelerators not governed by the *Nuclear Safety and Control Act* (Canada) and the regulations under that Act;

(c) baggage inspection x-ray equipment;

(d) security x-ray equipment;

(e) cabinet x-ray equipment;

(f) analytical x-ray equipment;

(g) industrial x-ray equipment;

(h) irradiation x-ray equipment;

(i) class 3b or 4 lasers that are not enclosed within a laser system with a lower classification, as described in ANSI Standard Z136.1-2007, "American National Standard for the Safe Use of Lasers" published by the American National Standards Institute.

AR 182/2003 s8;144/2013

Registration certificates for installation and operation

9 Prior to the installation or operation of designated radiation equipment, its owner shall obtain a valid registration certificate for the installation or operation, as the case may be, of that specific equipment.

Obtaining of registration certificates

10(1) The Director may issue registration certificates in accordance with this Part.

(2) The Director may make the obtaining of a registration certificate subject to such conditions as the Director considers necessary to ensure the safe use of the designated radiation equipment being registered.

(3) Without limiting subsection (2), the Director may make the obtaining of a registration certificate covering the installation of designated radiation equipment subject to the owner's previously providing the shielding design information for the radiation facility that is required by the Director.

Term and renewal date for certificates

11 The term and renewal date of a registration certificate are to be as set by the Director.

Restrictions for certificates

12 A person who holds a registration certificate shall comply with all restrictions imposed by the Director under section 10(3) of the Act.

AR 182/2003 s12;144/2013

Posting or communication of certificates

13 A person who holds a registration certificate shall

(a) if practicable, ensure that a copy or a record of the certificate is posted at the work site, or

(b) if it is not practicable to post the certificate, communicate to the workers who will use the equipment the restrictions contained in the certificate.

Provision of information to Director

13.1(1) A person shall, within 30 days after selling, leasing, transferring, lending, assembling or installing designated radiation equipment, provide the following information to the Director:

(a) that person's name and address;

(b) the name and address of the person to whom the designated radiation equipment was sold, leased, transferred or lent or for whom the designated radiation equipment was assembled or installed;

(c) the manufacturer, model, serial number and, if available, date of manufacture of the designated radiation equipment;

(d) the date on which the ownership or possession of the designated radiation equipment changed or on which the designated radiation equipment was assembled or installed.

(2) A person who sells or transfers designated radiation equipment shall inform the person to whom it is sold or transferred of the requirement to obtain a valid registration certificate prior to installation or operation of the designated radiation equipment.

(3) Within 30 days after designated radiation equipment has been removed from service, the owner shall

(a) provide, as applicable in the circumstances, the Director with

(i) the date on which the designated radiation equipment was removed from service,

(ii) the date on which the designated radiation equipment was placed in storage, and

(iii) the date on which the designated radiation equipment was destroyed or disposed of,

and

(b) return the registration certificate for the designated radiation equipment to the Director.

AR 144/2013 s10

Part 3
Protective Measures for the Use of Radiation Equipment

Shielding - ionizing radiation equipment

14 The owner of radiation equipment or a radiation source that produces ionizing radiation shall ensure that the structural shielding design for the radiation facility is adequate to ensure that the maximum effective dose limits and maximum equivalent dose limits specified in Tables 1 and 2 of Schedule 1 respectively are not exceeded.

AR 182/2003 s14;74/2004;144/2013

Ionizing radiation equipment - x-ray equipment

15 The owner shall ensure that the installation, and the employer shall ensure that the use, of

(a) x-ray equipment used for medical diagnosis comply with Safety Code 35, (2008), "Safety Procedures for the Installation, Use and Control of X-ray Equipment in Large Medical Radiological Facilities" published by Health Canada,

(b) repealed AR 144/2013 s12,

(c) x-ray equipment used in a dental practice comply with Safety Code 30, (Revised 2000), "Radiation Protection in Dentistry: Recommended Safety Procedures for the Use of Dental X-Ray Equipment" published by Health Canada,

(d) x-ray equipment used in a veterinary practice comply with Safety Code 28, (1991), "Radiation Protection in Veterinary Medicine: Recommended Safety Procedures for Installation and Use of Veterinary X-Ray Equipment" published by Health Canada,

(e) analytical x-ray equipment comply with Safety Code 32, (1994), "Safety Requirements and Guidance for Analytical X-Ray Equipment" published by Health Canada,

(f) industrial x-ray equipment comply with Safety Code 34, (2003), "Radiation Protection and Safety for Industrial X-ray Equipment" published by Health Canada, and

(g) baggage inspection x-ray equipment comply with Safety Code 29, (1993), "Requirements for the Safe Use of Baggage X-Ray Inspection Systems" published by Health Canada.

AR 182/2003 s15;144/2013

Conflict in legislation

16 If there is a conflict between this Regulation and any code referred to in section 15, this Regulation prevails, and if there is a conflict between any such code and the *Radiation Emitting Devices Regulations* (Canada) CRC, Vol. XIV, c.1370, those federal regulations prevail.

Non-ionizing radiation equipment - lasers and laser systems

17(1) In this section, "health care facility" means a facility where laser radiation is intentionally administered for diagnostic, therapeutic or research purposes by medical, dental, chiropractic, veterinary or other health professionals.

(2) The owner shall ensure that the installation of, and the employer shall ensure that the use of, lasers and laser systems

(a) in a health care facility comply with CAN/CSA-Z386-08, "Safe Use of Lasers in Health Care Facilities" published by the Canadian Standards Association, and

(b) other than in a health care facility comply with ANSI Standard Z136.1-2007, "American National Standard for the Safe Use of Lasers" published by the American National Standards Institute.

AR 182/2003 s17;144/2013

Part 4
Transitional, Consequential Amendments, Repeals and Expiry

18 Repealed AR 182/2003 s20.

Consequential amendments

19 The *Radiation Health Administration Regulation* (AR 49/96) is amended

(a) by striking out "(Alta. Reg. 162/90)" **wherever it occurs;**

(b) in section 2(1) by striking out "10(2)" **and substituting** "10(1)(b), (2)";

(c) in section 2(2) by striking out "section 9(b)" **and substituting** "sections 10 and 11".

Repeals

20(1) The *Radiation Protection Regulation* (AR 162/90) is repealed.

(2) Section 18 of this Regulation is repealed one day after it comes into force.

Expiry

21 For the purpose of ensuring that this Regulation is reviewed for ongoing relevancy and necessity, with the option that it may be repassed in its present or an amended form following a review, this Regulation expires on September 30, 2022.

AR 182/2003 s21;37/2013;144/2013

Schedule 1

Table 1

Maximum Effective Dose Limits for Ionizing Radiation

Person	Exposure Period	Effective Dose Limit (mSv)
Radiation worker	One year	50
	Rolling 5 calendar years	100
Pregnant radiation worker	Balance of pregnancy after informing employer in accordance with section 5(1)	4
Student undergoing a course of instruction involving the use of ionizing designated radiation equipment	One year	1
Person who is not a radiation worker	One year	1

Table 2

Maximum Equivalent Dose Limits for Ionizing Radiation

Person	Applicable Body Organ or Tissue	Exposure Period	Equivalent Dose Limit (mSv)
Radiation worker	Lens of the eye	One year	50
		Rolling 5 calendar years	100
	Skin	One year	500
	Hands and feet	One year	500
Person who is not a radiation worker	Lens of the eye	One year	15
	Skin	One year	50
	Hands and feet	One year	50

AR 182/2003 Sched.1;74/2004;144/2013

Schedule 2

Table 1
Maximum Exposure Limits for Laser Radiation for any Persons

Type of Radiation	Maximum Exposure Limit
Laser	As set out in ANSI Standard Z136.1-2007, "American National Standard for the Safe Use of Lasers" published by the American National Standards Institute

Table 2
Maximum Exposure Limits for Radiofrequency Electromagnetic Fields for any Persons

Type of Radiation	Maximum Exposure Limit
Radiofrequency Electromagnetic Fields in the Range from 3 kHz to 300 GHz	As set out in Safety Code 6, (2009), "Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz" published by Health Canada

AR 182/2003 Sched.2;144/2013

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