

## **The College of Dental Surgeons of Saskatchewan Radiation and Imaging Standard**

### **Legislation**

Radiation safety has long been a priority in Saskatchewan. This province, the first in Canada to have radiation safety legislation, passed *The Radiological Health Act* on March 15, 1961. The Act underwent a major revision in 1985 at which time it was renamed *The Radiation Health and Safety Act, 1985*. As well as protecting operators of radiation equipment, the Act was designed to protect patients and the general public from excessive radiation exposure. *The Radiation Health and Safety Regulations, 2005* are the result of collaborative work by the provincial Radiation Health and Safety Committee, owners and users of radiation equipment, other stakeholders and the public.

### **CDSS Members**

Members 'connected' to and operating in CDSS approved Dental Facility must ensure that radiation exposure to staff, patients and the public in general is kept as low as reasonably achievable (ALARA principle).

The Radiation Health and Safety Act (Appendix 1) and Regulations (Appendix 2) require the following in dental clinics:

### **Dental Clinic**

1. "Dental Clinic" means a place in which radiation equipment is used by or under the direction of a dentist, as defined in The Dental Disciplines Act, for diagnostic or therapeutic purposes with respect to a patient. (*The Radiation Health and Safety Regulations, 2005*)

### **Approval**

2. An accurate plan of the proposed installation or alteration must be submitted and approval obtained from the Radiation Safety Unit prior to installation or alterations.

### **Certification**

3. Prior to turning the x-ray equipment over to the owner, the vendor or installer of the equipment must complete an electrical and mechanical inspection of the x-ray unit and perform a calibration of the x-ray equipment to certify that the unit meets all specifications. A copy of the report must be submitted to the owner and the Unit within thirty days of the installation. This applies to the installation of both new and used x-ray units.

### **Registration**

4. The x-ray unit(s) must be registered with the department using the prescribed form, within one month of the installation or its alteration. It must subsequently be re-registered each year.

### **Qualifications**

5. Only those persons adequately trained qualify to operate dental x-ray equipment.

## Quality Assurance

6. The owner must establish a quality assurance program to ensure the safe operation of the equipment and diagnostic quality of the images.

### Inspections:

7. The owner must arrange for each x-ray unit to receive a Safety Preventive Maintenance (SPM) inspection by a qualified service person at least once every three years.

### Safety:

8. The owner and/or operator must make sure that adequate safety precautions are taken to ensure that patients, general public and staff are not unnecessarily exposed to ionizing radiation.

## Ionizing Radiation Installation

9. "Ionizing Radiation Installation" means the whole or any part of a building or other place in which ionizing radiation equipment is manufactured, used or placed or installed for use, and includes that ionizing radiation equipment;

## Owner

10. "Owner" means a person having management and control of a radiation installation or radiation equipment, or both;
11. An owner of dental ionizing radiation installation or any ionizing radiation equipment used for diagnosis or treatment relating to human beings shall ensure that each operator is a dentist, dental assistant, dental hygienist or dental therapist as each is defined in The Dental Disciplines Act ; or a student who is under the direct supervision of a person who possesses the qualifications set out above.
12. No person shall manage or control (own) an ionizing radiation installation or any ionizing radiation equipment used for diagnosis or treatment relating to human beings unless the person:
  - (a) is qualified pursuant to an Act to provide persons with care and treatment by means of ionizing radiation equipment; or
  - (b) employs an individual who meets the requirements of clause (a) to attend to the operation of the ionizing radiation installation or ionizing radiation equipment (Dentists cannot be employed by other than CDSS members, a CDSS dental professional corporation, a CPSS physician or a DDA s25 Agency pursuant to Bylaw 3.??; Assistants, Hygienists and Therapists cannot be employed by other than Dentists or a DDA s25 agency pursuant to the DDAs25).
13. No person shall manage or control an ionizing radiation installation or ionizing radiation equipment that is used for a purpose other than diagnosis or treatment relating to human beings or animals unless:
  - (a) the person:
    - (i) Understands the procedures for which the equipment is to be used; and
    - (ii) possesses the knowledge necessary to adequately manage or control the ionizing radiation installation or ionizing radiation equipment and knowledge of the necessary safety procedures; or
  - (b) Employs an individual who meets the requirements of clause (a) to attend to the operation of the ionizing radiation installation or ionizing radiation equipment.

### **Ionizing Radiation Equipment**

14. "Ionizing Radiation Equipment" means a device capable of emitting ionizing radiation, but does not include:
- (i) equipment operated at less than 15 kilovolts and not designed principally to produce useful radiation;
  - (ii) equipment that is in storage, in transit or not being used or equipment operated in such a manner that it cannot produce radiation;
  - (iii) any radioactive substance; or
  - (iv) any other equipment or class of equipment specified in the regulations;

### **Operators**

15. "operator" means a person who uses or controls the use of any radiation equipment;
16. All operators must know of radiation hazards and be able to adequately protect themselves, patients and others.
17. All operators must have an adequate knowledge of radiation physics, techniques and their own equipment to be able to produce radiographs of diagnostic quality with the least patient exposure practicable.
18. All operators must be of 18 years of age or older.
19. All operators must be licensed or certified according to a standard recognized by the College of Dental Surgeons of Saskatchewan.
20. Any female operator who suspects she is pregnant should inform her employers and together with him/her ensure that for the remainder of her pregnancy her duties are compatible with minimum radiation exposure.

### **Operators-In-Training**

21. All operators-in-training or inexperienced operators must work only under direct supervision of an experienced operator. Operators beginning training at an age less than 18 years must not receive an annual dose equivalent exceeding 1.5 rem (15 mSv).

### **Building and Equipment**

22. All aspects of equipment manufacture or import installation and shielding must conform to the Federal and Provincial Acts and Regulations that govern these items.

### **Films and Processing**

23. Digital Radiation equipment is recommended.
24. In installations using film, High speed film (E,F speed) must be used
25. Films should be stored in a cool, dry place away from chemicals and radiation.
26. Films must be processed under light-tight conditions in a darkroom or daylight hood.
27. Manufactures' directions must be followed in the preparation and use of processing chemicals, including concentration of solution, time and temperature.
28. Safelights should be installed as per manufactures directions and compatible with all films used. Red bulbs are not acceptable. Screen film such as pantomographic films are more sensitive to light than intraoral dental films. Care must be taken to ensure that no light of incorrect wave length reaches these films.
29. Films should be handled carefully to avoid creasing, scratching and static electricity.

### **Radiation Protection for Office Personnel:**

30. Members are responsible for ensuring that proper radiation hygiene procedures are understood and followed by staff within facilities they are 'connected' with.
31. An operatory (room) must not be used for more than one radiographic procedure simultaneously.
32. No person whose presence is not essential must be in the room during exposure.
33. Persons other than the patient must keep as far away as practicable from the primary beam. Personnel must not be exposed to the useful beam. Deliberate exposure for training purposes only must not occur.
34. Personnel must take full advantage of the protective devices available.
35. If necessary for the operator to be in the room during special procedures, protective clothing must be worn.
36. Where possible, film holding devices should be used during exposure. If necessary the patient should hold the film. The operator should not hold the film; if this is necessary (this should not become a habit), protective clothing including gauntlets should be used.
37. If weak patients or children need support, holding devices should be used. If parents, escorts, or other personnel are required to assist, they must be provided with adequate protective clothing and be positioned outside of the primary beam. No one person should regularly perform these duties.
38. The x-ray housing must not be held by hand during operation. Housing that drifts or vibrates excessively should have their supports adjusted.
39. All operators of x-ray equipment, personnel who regularly participate in radiological procedures or others who might receive more than 1/10<sup>th</sup> for the yearly maximum permissible doses should wear personnel dosimeters. When worn with a lead apron it must be worn under the apron.
40. Energized x-ray machines must not be left unattended in a freely accessible location.
41. Where radiation doses in excess of 25% of the maximum permissible doses are being received regularly by any one person, appropriate remedial steps must be taken to improve techniques and protective measures.

### **The Patient:**

42. One of the largest contributors of man-made radiation exposure of the population is diagnostic radiology. It has been stated by some that some of this is unnecessary and should be eliminated.
43. It is the responsibility of the dentist and under direction from him, his staff, to ensure that patients receive no more radiation than necessary. The recommendations and procedures in this section should prove guidelines to the dental practitioner to allow him to meet these goals.(see Chart 1)
44. Radiographs should be made only after clinical evaluation and should be for the purpose of obtaining information not readily otherwise available.
45. Radiographs should not be taken on a "routine" basis, but only on the basis of the above (see chart 1).
46. The dentist should check if recent films are adequate or can be used to alter the type and number of films required. They should be examined at the time of clinical evaluation.
47. When a patient transfers, or is referred from one practitioner to another, relevant films or copies should be forwarded to the new practitioner and be

reviewed by him/her. They can be copied and returned to the first practitioner when they have served their purpose.

48. The number of radiographs required should be kept to the minimum practicable, consistent with obtaining the required information.
49. The fastest films or screen-film combinations consistent with obtaining the required information should be used. The beam should be well collimated.
50. Repeat exposures should not be prescribed merely because the film is not of the “best” diagnostic quality if the radiograph contains the required information.
51. The quality of radiographs should be monitored routinely to ensure that they satisfy diagnostic requirements with minimal patient exposure.

### **ALARA**

52. Radiation safety standards are based on internationally accepted principles of best practice and use of radiation. While there is not one research study that defines an absolute safe minimum for radiation exposure, most regulations are based on the Linear Non-Threshold Model (LNT) that assumes all radiation exposure carries some risk to the individual. However, the regulations are tempered with the ALARA principle, which means to keep radiation exposure As Low As Reasonably Achievable which is dependent on the type of radiation, the benefit derived from its use, and the amount of burden caused by implementing radiation safety practices.

### **Personal Protective equipment**

53. Lead garments should be used to protect patients from radiation whenever it is possible and does not interfere with the diagnostic image.
54. It is reasonable to ask that a dentist to supply protective equipment for patients, and if required for the operators, since the cost and time of placement is minimal. It is recommended that a lead apron with a thyroid collar be used for intraoral films. Panoramic or cephalometric radiographic exams are usually performed with a lead apron and no thyroid collar.
55. For lasers, the primary concern is eye exposure. Reflections from mirrors or stainless steel surgical equipment can cause accidental exposure. All personnel in the laser treatment area including the patient should use safety eyewear of the appropriate protective wavelength. Laser generated air contaminants are typically contained with conventional dental high volume evacuation systems.

### **Quality Assurance**

56. You have some options to ensure that you are in compliance with this regulation.
  - (i) Develop an in-house system that will outline the tests that you will do and where you will document the results of these tests. {If you do this, you will have to send your system to Saskatchewan Labour to get it approved – see *clause 16(2)(a)*.}
  - (ii) Purchase an off-the-shelf QA System. {you should check to make sure that Saskatchewan Labour has approved it.}
  - (iii) Order a QA kit from the College of Dental Surgeons of Saskatchewan. {With the assistance of the Saskatchewan Labour’s Radiation Safety Unit, the College has developed a Quality Assurance Procedures Manual that contains all the procedures and testing equipment that you will need to be in compliance with *section 16* of the Regulations.}

**RECOMMENDATIONS FOR PRESCRIBING DENTAL RADIOGRAPHS (ADA)**

These recommendations are subject to clinical judgment and may not apply to every patient. They are to be used by dentists only after reviewing the patient’s health history and completing a clinical examination. Even though radiation exposure from dental radiographs is low, once a decision to obtain radiographs is made it is the dentist's responsibility to follow the ALARA Principle (As Low as Reasonably Achievable) to minimize the patient's exposure.

Chart 1

TYPE OF ENCOUNTER	PATIENT AGE AND DENTAL DEVELOPMENTAL STAGE				
	Child with Primary Dentition (prior to eruption of first permanent tooth)	Child with Transitional Dentition (after eruption of first permanent tooth)	Adolescent with Permanent Dentition (prior to eruption of third molars)	Adult, Dentate or Partially Edentulous	Adult, Edentulous
<b>New Patient*</b> being evaluated for oral diseases	Individualized radiographic exam consisting of selected periapical/occlusal views and/or posterior bitewings if proximal surfaces cannot be visualized or probed. Patients without evidence of disease and with open proximal contacts may not require a radiographic exam at this time.	Individualized radiographic exam consisting of posterior bitewings with panoramic exam or posterior bitewings and selected periapical images.	Individualized radiographic exam consisting of posterior bitewings with panoramic exam or posterior bitewings and selected periapical images. A full mouth intraoral radiographic exam is preferred when the patient has clinical evidence of generalized oral disease or a history of extensive dental treatment.		Individualized radiographic exam, based on clinical signs and symptoms.
<b>Recall Patient*</b> with clinical caries or at increased risk for caries**	Posterior bitewing exam at 6-12 month intervals if proximal surfaces cannot be examined visually or with a probe			Posterior bitewing exam at 6-18 month intervals	Not applicable
<b>Recall Patient*</b> with no clinical caries and not at increased risk for caries**	Posterior bitewing exam at 12-24 month intervals if proximal surfaces cannot be examined visually or with a probe		Posterior bitewing exam at 18-36 month intervals	Posterior bitewing exam at 24-36 month intervals	Not applicable

## The Use of D-Speed Film



A survey conducted by the Radiation Safety Unit in 2008 showed that about half of the dentists in Saskatchewan were still using D-speed film. The same survey also showed that the patient radiation dose from E/F-speed film was up to 50% less than the dose from D-speed film and that the radiation dose from digital systems was lower still.

Let's say that you have two methods that you could use to take a radiograph but one needs twice as much radiation as the other. Now, instead of you taking the x-rays, let's imagine another dentist is preparing to take a full-mouth series and it's your child in the dental chair. Knowing that either imaging method would produce radiographs with the same diagnostic information, which imaging procedure would you want your colleague to employ? If your colleague is still using D-speed film, this is the quandary that you are in.

Studies have shown that the diagnostic quality of the images acquired with faster films is equivalent to those obtained using the slower D-speed film. The E/F-speed images may not be as aesthetically pleasing but let's keep in mind that your patient is being exposed to radiation to assist you with your diagnosis, not to provide you with a pretty picture. Once you've thought about it, you may ask yourself, "How can I justify my ongoing use of D-speed film?"

It's time to make a change. You now have two paths that you can take. One is to switch to a faster film while the other is to abandon film entirely and go digital. If you stay with film, there will be no significant outlay of cash. The cost of the faster films is the same as that for D-speed. The cost of maintaining the film processing equipment will also remain constant. You will, however, have to develop a technique chart that will take patient's size into consideration. The upside of this conversion is that the dose to your patients should be cut in half.

Now if you pay heed to the rumours that the future will no longer hold a place for film, you might decide to go digital now. Transitioning to digital will involve some upfront costs for the imaging sensors, computer systems and monitors, but ongoing costs for film and processing will no longer be line items in your budget. When implemented correctly, digital imaging will result in your patient's exposure being about a third of what they would have received if D-speed film were used. Even if you convert from E or F-speed film to digital, there should still be a noticeable reduction in dose.

While researching what is in the digital market place, you hear that unlike film, too much radiation won't spoil your digital image. In fact, it may improve its quality. But now you're back to square one – do you overexpose your patient and get a pretty picture or do you dial down your technique so that your patient gets the least amount of radiation required for you to get a diagnostic image? If your answer is '*overexpose*' then you might as well have stayed with D-speed.

The College has been advised that the Government's Radiation Safety Unit is assessing the use of D-speed film in other jurisdictions and that disallowing the use of D-speed film is being considered. It is noteworthy that in 2003, the National Commission on Radiation Protection and Measurements (NCRP) stated in NCRP Report No. 145 that "image receptors of speeds slower than ANSI Speed Group E films **shall not** be used for intraoral radiography." Also, one country in Europe has banned the use of D-speed as of January of this year.

For those of you still in the D-speed boat, it may now be time to start thinking about abandoning ship and charting a new course in a quicker craft. By planning your switch to a faster imaging system, you will have control over the transition. If you wait for an imposed change, you will be working to the timelines of others rather than your own. For the present, the choice is still yours.

# *The Radiation Health and Safety Act, 1985*

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Chapter R-1.1 of the *Statutes of Saskatchewan, 1984-85-86* (effective June 19, 1985) as amended by the *Statutes of Saskatchewan, 1996, c.19*; and 2005, c.20.

## **NOTE:**

This consolidation is not official. Amendments have been incorporated for convenience of reference and the original statutes and regulations should be consulted for all purposes of interpretation and application of the law. In order to preserve the integrity of the original statutes and regulations, errors that may have appeared are reproduced in this consolidation.

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## CHAPTER R-1.1

### An Act for the Protection of the Health of Persons exposed to Radiation and for the Safety of Persons in Connection with the Operation and Use of Radiation Producing Equipment and Associated Apparatus

#### SHORT TITLE AND INTERPRETATION

##### Short title

1 This Act may be cited as *The Radiation Health and Safety Act, 1985*.

##### Interpretation

2 In this Act:

- (a) **“associated apparatus”** means any piece of diagnostic or therapeutic equipment using or associated with radiation which might be a mechanical or electrical hazard to any person;
- (b) **“committee”** means the Radiation Health and Safety Committee continued pursuant to section 18;
- (c) **“department”** means the department over which the minister presides;
- (d) **“ionizing radiation”** means any atomic or subatomic particle or electromagnetic wave emitted or produced directly or indirectly by a machine or radioactive isotope and having sufficient kinetic or quantum energy to produce ionization;
- (e) **“ionizing radiation equipment”** means a device capable of emitting ionizing radiation, but does not include:
  - (i) equipment operated at less than 15 kilovolts and not designed principally to produce useful radiation;
  - (ii) equipment that is in storage, in transit or not being used or equipment operated in such a manner that it cannot produce radiation;
  - (iii) any radioactive substance; or
  - (iv) any other equipment or class of equipment specified in the regulations;
- (f) **“ionizing radiation installation”** means the whole or any part of a building or other place in which ionizing radiation equipment is manufactured, used or placed or installed for use, and includes that ionizing radiation equipment;
- (g) **Repealed.** 1996, c.19, s.3.

- (h) “**minister**” means the member of the Executive Council to whom for the time being the administration of this Act is assigned;
- (i) “**non-ionizing radiation**” includes energy in the form of:
- (i) electromagnetic waves in the frequency range below that for which ionization occurs; or
  - (ii) ultrasonic waves having frequencies greater than 10,000 hertz;
- (j) “**non-ionizing radiation equipment**” means any equipment that is capable of emitting non-ionizing radiation;
- (k) “**non-ionizing radiation installation**” means the whole or any part of a building or other place in which non-ionizing radiation equipment is manufactured, used or placed or installed for use, and includes that non-ionizing radiation equipment;
- (l) “**occupational worker**” means a person who, in the course of the person’s duties, business, professional activities, studies or training:
- (i) is exposed to radiation; and
  - (ii) where exposure limits, exposure levels or dose limits are specified for members of the public, might receive radiation exposure in excess of those limits or levels;
- (m) “**officer**” means an officer of the department appointed pursuant to section 16;
- (n) “**operator**” means a person who uses or controls the use of any radiation equipment;
- (o) “**owner**” means a person having management and control of a radiation installation or radiation equipment, or both;
- (p) “**person**” includes a firm, partnership and unincorporated association;
- (q) “**purchaser**” includes a lessee;
- (r) “**radiation**” includes ionizing radiation and non-ionizing radiation;
- (s) “**radiation equipment**” includes ionizing radiation equipment and non-ionizing radiation equipment;
- (t) “**radiation health**” means the science and art of protecting persons from injury by radiation;
- (u) “**radiation installation**” includes ionizing radiation installations and non-ionizing radiation installations;
- (v) “**safety measures**” means measures designed for the purposes of safety in connection with the design and use of radiation installations, radiation equipment and associated apparatus;
- (w) “**use**” includes construct, demonstrate, test, operate, handle, repair, service and maintain;

(x) “**vendor**” means a person who sells or leases or offers for sale or lease any radiation equipment or associated apparatus.

1984-85-86, c.R-1.1, s.2; 1996, c.19, s.3.

## IONIZING RADIATION

### **Establishment and alteration of ionizing radiation installation, installation of ionizing radiation equipment**

**3(1)** In this section, “**substantial alteration**” includes:

- (a) in respect of any ionizing radiation equipment which emits a primary beam outside the housing of the equipment, any alteration or change of position which causes the equipment to be capable of emitting a primary beam in any directions other than those for which approval was granted when the plans for the installation were approved;
- (b) any alteration in the shielding properties of the room or other place in which the ionizing radiation equipment is placed or installed;
- (c) any increase in the maximum generating voltage or maximum beam current of ionizing radiation equipment in an installation; and
- (d) the placement or installation of any units of ionizing radiation equipment in an ionizing radiation installation in excess of the number of units approved when the plans for the installation were approved.

**(2)** No person shall:

- (a) establish or cause to be established an ionizing radiation installation for any purpose; or
- (b) make or cause to be made any substantial alteration in any ionizing radiation installation;

unless a plan of the proposed installation or proposed alteration has been approved in writing by an officer.

**(3)** Subsection (2) does not apply to any ionizing radiation installation or alteration that is exempted from the application of that subsection in the regulations.

**(4)** An officer may withhold approval of a plan submitted for approval pursuant to subsection (1) until he is satisfied that the ionizing radiation installation will be constructed or altered in such a manner that all reasonable precautions are taken to avoid danger to the health of any person.

**(5)** No person shall use any mobile ionizing radiation equipment in any location other than one approved by an officer.

1984-85-86, c.R-1.1, s.3.

**Statements required re ionizing radiation installations and equipment**

4(1) Subject to subsection (2), every owner shall, within one month after the day on which any ionizing radiation installation or ionizing radiation equipment:

- (a) comes under his control; or
- (b) that is under his control is substantially altered;

furnish the department with a statement, in the form prescribed by the minister, setting forth particulars of that installation, equipment or alteration, as the case may be.

(2) Every owner of any mobile ionizing radiation equipment shall:

- (a) furnish the department with the statement mentioned in subsection (1) within the time that may be prescribed in the regulations; and
- (b) if required to do so, furnish the department with an itinerary for the equipment containing any particulars that may be prescribed in the regulations.

(3) Every owner shall, during the month of January in each year, furnish the department with a statement, in the form prescribed by the minister, setting forth particulars of all ionizing radiation installations and ionizing radiation equipment then under the owner's control.

1984-85-86, c.R-1.1, s.4.

**Manufacture and use of ionizing radiation equipment and associated apparatus**

5(1) For the purposes of this section, "owner" includes:

- (a) a vendor until the vendor relinquishes control of ionizing radiation equipment or associated apparatus to its purchaser after any installation or testing has been carried out by the vendor; and
- (b) any person who alters, repairs, services, maintains or tests ionizing radiation equipment or associated apparatus.

(2) The owner of any ionizing radiation equipment or associated apparatus shall ensure that the equipment or apparatus is manufactured and used:

- (a) in compliance with the regulations; and
- (b) in such a manner that:
  - (i) no person will be unnecessarily exposed to ionizing radiation from that equipment or apparatus; and
  - (ii) no person in the vicinity of that equipment or apparatus will be exposed to ionizing radiation from it that exceeds the dose limits prescribed in the regulations.

(3) The operator of any ionizing radiation equipment or associated apparatus shall use or control the use of the equipment:

- (a) in compliance with the regulations; and
- (b) in the manner prescribed in clause (2)(b).

(4) Nothing in this section limits or extinguishes any liability to which a vendor, manufacturer, owner or operator of ionizing radiation equipment or associated apparatus may be subject.

1984-85-86, c.R-1.1, s.5; 1996, c.19, s.4.

**Qualifications for management, control or operation**

6(1) No person shall manage or control an ionizing radiation installation or any ionizing radiation equipment used for diagnosis or treatment relating to human beings unless the person:

(a) is qualified pursuant to an Act to provide persons with care and treatment by means of ionizing radiation equipment; or

(b) employs an individual who meets the requirements of clause (a) to attend to the operation of the ionizing radiation installation or ionizing radiation equipment.

(2) An owner of an ionizing radiation installation or any ionizing radiation equipment used for diagnosis or treatment relating to human beings shall ensure that each operator is:

(a) a duly qualified medical practitioner with specialized training in radiography;

(b) a chiropractor who is registered pursuant to *The Chiropractic Act, 1994*;

(c) a dentist, dental assistant, dental hygienist or dental therapist as each is defined in *The Dental Disciplines Act* ;

(d) **Repealed.** 2005, c.20, s.5.

(e) a medical radiation technologist who is registered pursuant to *The Medical Radiation Technologists Act*;

(f) subject to subsection (3), an X-ray technician who possesses the qualifications necessary to become a registered certified active member in good standing of the Saskatchewan Association of Combined Laboratory and X-ray Technicians;

(g) a student who is under the direct supervision of a person who possesses the qualifications set out in clause (a), (b), (c), (d), (e) or (f); or

(h) a person who:

(i) is trained to carry out the procedures for which the equipment is to be used; and

(ii) demonstrates to the satisfaction of an officer that he or she possesses adequate knowledge of the equipment, the biological effects associated with the equipment's use and the necessary safety procedures.

(3) An owner of an ionizing radiation installation or any ionizing radiation equipment used for diagnosis or treatment relating to human beings shall ensure that operators described in clause (2)(f) perform only examinations for which they have been formally trained.

## c. R-1.1

## RADIATION HEALTH AND SAFETY, 1985

(4) No person shall manage or control an ionizing radiation installation or any ionizing radiation equipment used for diagnosis or treatment relating to animals unless the person:

- (a) is entitled to practise veterinary medicine by reason of being registered pursuant to *The Veterinarians Act, 1987*; or
- (b) employs an individual who meets the requirements of clause (a) to attend to the operation of the ionizing radiation installation or ionizing radiation equipment.

(5) An owner of an ionizing radiation installation or any ionizing radiation equipment used for diagnosis or treatment relating to animals shall ensure that each operator is:

- (a) a veterinarian entitled to practise veterinary medicine by reason of being registered pursuant to *The Veterinarians Act, 1987*;
- (b) an animal health technician registered pursuant to clause 2(b) of *The Veterinarians Act, 1987*; or
- (c) a student under the direct supervision of a person who possesses the qualifications set out in clause (a) or (b).

(6) No person shall manage or control an ionizing radiation installation or ionizing radiation equipment that is used for a purpose other than diagnosis or treatment relating to human beings or animals unless:

- (a) the person:
  - (i) understands the procedures for which the equipment is to be used; and
  - (ii) possesses the knowledge necessary to adequately manage or control the ionizing radiation installation or ionizing radiation equipment and knowledge of the necessary safety procedures; or
- (b) employs an individual who meets the requirements of clause (a) to attend to the operation of the ionizing radiation installation or ionizing radiation equipment.

(7) An owner of an ionizing radiation installation or ionizing radiation equipment that is used for a purpose other than diagnosis or treatment relating to human beings or animals shall ensure that each operator:

- (a) possesses any qualifications or meets any requirements that are set out in the regulations; and
- (b) is adequately supervised by a person who meets the requirements of clause (6)(a) or (b).

(8) No person shall operate an ionizing radiation installation or any ionizing radiation equipment unless the person possesses the qualifications set out in subsection (2), (5) or (7).

## NON-IONIZING RADIATION

**Establishment and alteration of non-ionizing radiation installation**

7(1) Where the regulations require the approval of plans for a non-ionizing radiation installation, no person shall:

- (a) establish or cause to be established a non-ionizing radiation installation; or
- (b) make or cause to be made any substantial alteration in any non-ionizing radiation installation;

unless a plan of the proposed installation or proposed alteration, as the case may be, has been approved in writing by an officer.

(2) An officer may withhold approval of a plan submitted for approval pursuant to subsection (1) until he is satisfied that the non-ionizing radiation installation will be constructed or altered in such a manner that all reasonable precautions are taken to avoid danger to the health of any person.

1984-85-86, c.R-1.1, s.7.

**Statements required re equipment emitting non-ionizing radiation**

8 Every owner of non-ionizing radiation equipment or a non-ionizing radiation installation shall, where required by the regulations, furnish the department with a statement, in the form prescribed by the minister, setting out any information about that equipment or installation required by the regulations.

1984-85-86, c.R-1.1, s.8.

**Manufacture and use of non-ionizing radiation equipment and associated apparatus**

9(1) For the purposes of this section, “owner” includes:

- (a) a vendor until the vendor relinquishes control of non-ionizing radiation equipment or associated apparatus to its purchaser after any installation or testing has been carried out by the vendor; and
- (b) any person who alters, repairs, services, maintains or tests non-ionizing radiation equipment or associated apparatus.

(2) The owner of any non-ionizing radiation equipment or associated apparatus shall ensure that the equipment or apparatus is manufactured and used:

- (a) in compliance with the regulations; and
- (b) in such a manner that the exposure of any person to non-ionizing radiation is limited in the manner and to the amounts prescribed in the regulations.

(3) The operator of any non-ionizing radiation equipment or associated apparatus shall use or control the use of the equipment or apparatus:

- (a) in compliance with the regulations; and
- (b) in the manner prescribed in clause (2)(b).

**c. R-1.1****RADIATION HEALTH AND SAFETY, 1985**

(4) Nothing in this section limits or extinguishes any liability to which a vendor or a manufacturer of non-ionizing radiation equipment or associated apparatus may be subject.

1984-85-86, c.R-1.1, s.9.

**Qualifications for management, control and use**

**10** No person shall:

- (a) have management or control of; or
- (b) use or control the use of;

any non-ionizing radiation equipment or class of non-ionizing radiation equipment unless the person possesses the qualifications or meets the requirements that may be prescribed in the regulations.

1984-85-86, c.R-1.1, s.10; 1996, c.19, s.6.

**IONIZING AND NON-IONIZING RADIATION****Restrictions on use**

**11** No person shall use a radiation installation, radiation equipment or associated apparatus:

- (a) that does not comply with the standards prescribed in the regulations; or
- (b) the use of which has been prohibited by an officer pursuant to clause 16(5)(b).

1984-85-86, c.R-1.1, s.11.

**Information required**

**12** Where required to do so by the regulations, the vendor of any radiation equipment or associated apparatus shall furnish the department with:

- (a) any information respecting the equipment or apparatus or its use that may be prescribed in the regulations;
- (b) the plans of the equipment or apparatus; or
- (c) both the information and plans mentioned in clause (a) and (b).

1984-85-86, c.R-1.1, s.12.

**Accidents or hazards**

**13** Where required to do so by the regulations, the vendor, owner or operator of any radiation equipment or associated apparatus shall notify the department of any accident or hazard involving the equipment or apparatus, in the manner and with any particulars that may be prescribed in the regulations.

1984-85-86, c.R-1.1, s.13.

**Records**

**14** Every owner of radiation equipment shall:

- (a) keep any records respecting:
  - (i) the radiation equipment and its use;
  - (ii) the exposure of occupational workers to radiation; and
  - (iii) any other matter pertaining to radiation health and safety measures in relation to that equipment and to occupational workers;

that may be prescribed in the regulations; and

- (b) produce the records mentioned in clause (a) on the request of an officer.

1984-85-86, c.R-1.1, s.14.

**GENERAL****Use of certain fluoroscopes prohibited**

**15** No person shall use a fluoroscope as an aid in selling footwear to any person, or have control of a fluoroscope intended for such use, in any place other than the office of a person qualified pursuant to clause 6(a).

1984-85-86, c.R-1.1, s.15.

**Officers, appointment and powers**

**16(1)** The minister may appoint one or more officers of the department to administer and enforce this Act and to exercise any of the powers conferred on an officer by this Act.

(2) For the purpose of enforcing and administering this Act, an officer may:

- (a) subject to subsection (4), at any reasonable time without a warrant enter any radiation installation or any premises or place where radiation equipment or associated apparatus is manufactured, used or kept to carry out:

- (i) an inspection; or
- (ii) an accident investigation;

- (b) require the production of any records, designs, plans or other documents required by this Act or the regulations to be kept;

- (c) subject to subsection (3), on giving a receipt for the records, designs, plans or other documents produced pursuant to clause (b), remove the documents for the purpose of making copies or extracts of them.

(3) An officer shall copy the records, designs, plans or other documents removed pursuant to clause (2)(b) with reasonable dispatch and shall promptly return them to the person who produced them.

(4) An officer shall not enter into any room or place actually being used as a dwelling without the consent of the occupier, except when authorized to do so by a warrant issued by a justice of the peace or a judge of the Provincial Court of Saskatchewan.

**c. R-1.1****RADIATION HEALTH AND SAFETY, 1985**

(5) Where an officer finds a radiation installation, radiation equipment or associated apparatus that does not comply with the regulations or that, in his opinion, constitutes a hazard to any person, he may:

- (a) require the owner to carry out any repairs, alterations or servicing that he may specify, within any time that he may prescribe; or
- (b) prohibit the use of the installation, equipment or apparatus until:
  - (i) the repairs, alterations or servicing mentioned in clause (a) have been carried out;
  - (ii) an officer grants written permission; or
  - (iii) the repairs, alterations or servicing mentioned in clause (a) have been carried out and an officer grants written permission.

(6) A justice of the peace or a judge of the Provincial Court of Saskatchewan, if satisfied by the oath of an officer that there are reasonable grounds for believing that a contravention of this Act or the regulations has occurred and that there is evidence to be found at the place to be searched, may issue a warrant under his hand authorizing the person to be named in the warrant to enter the place named in the warrant and every part of the place named in the warrant and of the premises connected with that place to examine the place and connected premises and search for and seize and take possession of any records, designs, plans or other documents or other property that may constitute evidence of a contravention of this Act or the regulations.

1984-85-86, c.R-1.1, s.16.

**Services provided by department**

**17** The department may:

- (a) provide consulting services with respect to:
  - (i) radiation installations;
  - (ii) radiation equipment;
  - (iii) radiation health; and
  - (iv) safety measures;
- (b) furnish special services, including instrument calibrations and leak testing of sealed radioactive sources;
- (c) charge any fees for the services mentioned in clauses (a) and (b) that may be prescribed in the regulations.

1984-85-86, c.R-1.1, s.17; 1996, c.19, s.7.

**Radiation Health and Safety Committee**

**18(1)** Subject to subsection (1.1), the committee is continued consisting of the following persons appointed by the minister:

- (a) a diagnostic radiologist nominated by The College of Physicians and Surgeons of the Province of Saskatchewan;

- (b) a therapeutic radiologist nominated by The College of Physicians and Surgeons of the Province of Saskatchewan;
  - (c) a duly qualified medical practitioner nominated by The College of Physicians and Surgeons of the Province of Saskatchewan who, by reason of his being a specialist in pathology or internal medicine, has extensive knowledge of and training in haematology;
  - (d) a dentist or dental surgeon nominated by the College of Dental Surgeons of Saskatchewan;
  - (e) a medical radiation technologist nominated by the Saskatchewan Association of Medical Radiation Technologists;
  - (f) a physicist experienced in radiation physics;
  - (g) one or more persons selected by the minister;
  - (h) the officer of the department responsible for the supervising of the provision of the services mentioned in section 17; and
  - (i) one of the officers of the department appointed pursuant to section 16.
- (1.1) The minister shall make reasonable efforts to appoint persons to the committee who are described in clauses (1)(a) to (f) but the absence of any of those persons does not impair the power of the other members of the committee to act.
- (2) The committee shall:
- (a) advise the minister with respect to radiation health generally, safety measures and recommended codes of practice to be issued by him to every owner, operator and other person in Saskatchewan who may be exposed to radiation concerning radiation health, safety measures and the operation and use of radiation equipment and the use of radioactive substances;
  - (b) promote an educational program among all owners, operators, occupational workers and other persons who may be exposed to radiation respecting radiation dangers and the protection, in accordance with the practices recommended by the committee, of the health of owners, operators, occupational workers and other persons who may be exposed to radiation;
  - (c) give general direction and professional advice to officers including direction and advice with respect to the standards to be observed by officers in approving plans for establishing radiation installations and making recommendations respecting the acquisition, operation and use of radiation equipment and associated apparatus and the use of radioactive substances;
  - (d) advise the minister respecting the minimum age at which a person may be employed as an occupational worker in any particular occupation;
  - (e) advise the minister respecting the conditions under which a female person of reproductive age and capable of becoming pregnant may be employed as an occupational worker;
  - (f) review the professional qualifications and experience of persons applying for appointment as officers and make recommendations to the minister respecting those appointments;

**c. R-1.1****RADIATION HEALTH AND SAFETY, 1985**

(g) where the committee considers it advisable, ask the minister to furnish any financial and other assistance that he may consider reasonable in the circumstances to enable an occupational worker who has been exposed to radiation in excess of the dose limit or other exposure limit or exposure level prescribed by the regulations to undergo one or more medical examinations; and

(h) deal with any other matters relating to radiation health that the minister may refer to it.

1984-85-86, c.R-1.1, s.18; 1996, c.19, s.8; 2005, c.20, s.5.

**Codes of practice**

**18.1(1)** After any consultation with the committee and interested persons that the minister considers necessary, the minister may:

(a) approve and issue any code of practice that, in the opinion of the minister, is suitable for the purpose of providing practical guidance with respect to the requirements of any provision of this Act or the regulations; and

(b) amend or repeal any code of practice issued pursuant to clause (a).

(2) The minister shall publish in the Gazette a notice with respect to each code of practice that is issued, amended or repealed that:

(a) identifies the code;

(b) specifies the provisions of this Act or the regulations to which the code relates; and

(c) states the effective date of the issuance, the amendment or the repeal.

(3) Failure to observe a provision of a code of practice is not of itself an offence.

(4) A code of practice issued pursuant to this section with respect to any provision of this Act or the regulations is admissible as evidence in a prosecution for a contravention of that provision.

(5) A copy of a code of practice or an amendment to a code of practice, certified to be a true copy by the minister, shall be received in evidence in any court without proof of the signature, appointment or authority of the minister.

1996, c.19, s.9.

**Application of radiation not limited by Act**

**19(1)** Nothing in this Act or the regulations limits the kind or quantity of radiation that may be intentionally applied to a person for diagnostic or therapeutic purposes by or under the direction of a person qualified pursuant to an Act to provide persons with care and treatment by means of radiation equipment.

(2) Notwithstanding subsection (1), every operator of radiation equipment shall cause adequate precautions to be taken to ensure that no person is unnecessarily exposed to radiation.

1984-85-86, c.R-1.1, s.19.

**Regulations**

**20** After consultation with the committee, the Lieutenant Governor in Council may make regulations:

- (a) defining any word or expression that is used in this Act but not defined in this Act;
- (b) generally for preventing impairment of the health of occupational workers and other persons by radiation;
- (c) respecting the minimum age at which a person may be an occupational worker in any particular occupation;
- (d) prescribing and governing standards to be maintained to protect the reproductive health of any category of persons, including the conditions under which persons of reproductive age may be occupational workers;
- (e) prescribing and governing the standards to be maintained for safety purposes in connection with the operation and use of radiation equipment and associated apparatus;
- (f) prescribing and governing the inspections to be made and other measures to be taken in connection with the operation and use of radiation equipment and associated apparatus;
- (g) subject to subsection 19(1), prescribing and governing conditions under which radiation equipment may be installed or used;
- (h) requiring the development and implementation of procedures manuals with respect to any radiation equipment or radiation installation;
- (i) requiring the classification and labelling of radiation equipment;
- (j) requiring the display of warning signs or other signs providing information about radiation health and safety;
- (k) prescribing fees for the registration of radiation installations, for inspections, consulting services, instrument calibrations, leak testing of sealed radioactive sources and other special services;
- (l) establishing categories of occupational workers and other persons;
- (m) prescribing and governing exposure rates and dose limits for ionizing radiation to which any person or category of persons may be exposed;
- (n) providing for the monitoring and control of the exposure to or dose of radiation received by any person or category of persons;
- (o) classifying non-ionizing radiation equipment and forms of non-ionizing radiation;
- (p) prescribing and governing exposure limits and exposure levels for any form of non-ionizing radiation to which any person or category of persons may be exposed;

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- (p.1) with respect to any matter regulated pursuant to this Act:
- (i) adopting, as amended from time to time or otherwise, all or any part of any relevant code or standard;
  - (ii) amending for the purposes of this Act or the regulations a code or standard adopted pursuant to subclause (i);
  - (iii) requiring compliance with a code or standard adopted pursuant to subclause (i);
  - (q) requiring records to be kept by owners, operators and vendors, prescribing the periods during which records are to be kept and prescribing the nature of information to be recorded;
  - (r) prescribing any matter or thing that is required or authorized by this Act to be prescribed in the regulations or that he considers necessary for carrying out the purposes of this Act.

1984-85-86, c.R-1.1, s.20; 1996, c.19, s.10.

**Offence and penalty**

**21** Every person who:

- (a) fails to comply with an order or direction of an officer; or
- (b) contravenes this Act or the regulations;

is guilty of an offence and liable on summary conviction to a fine of not more than \$15,000 and, in the case of a continuing offence, to a further fine of not more than \$1,500 for each day during which the offence continues.

1984-85-86, c.R-1.1, s.21.

**Crown bound**

**22** Her Majesty is bound by this Act.

1984-85-86, c.R-1.1, s.22.

**R.S.S. c.R-1 repealed**

**23** *The Radiation Health and Safety Act* is repealed.

1984-85-86, c.R-1.1, s.23.