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**CONSOLIDATED NEWFOUNDLAND AND LABRADOR REGULATION  
1154/96**

*Radiation Health and Safety Regulations*  
under the  
*Radiation Health and Safety Act*  
(O.C. 96-479)

Amended by:

12/02

**CONSOLIDATED NEWFOUNDLAND AND LABRADOR REGULATION  
1154/96**

*Radiation Health and Safety Regulations*  
under the  
*Radiation Health and Safety Act*  
(O.C. 96-479)

Under the authority of section 13 of the *Radiation Health and Safety Act* and the *Subordinate Legislation Revision and Consolidation Act*, the Lieutenant-Governor in Council makes the following regulations.

**REGULATIONS**

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## Short title

1. These regulations may be cited as the *Radiation Health and Safety Regulations* .

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## Definitions

2. In these regulations

- (a) "Act" means the *Radiation and Health and Safety Act* ;
- (b) "collimator" means a device or mechanism that limits the shape and size of the useful beam;
- (c) "dose" means the quantity of energy absorbed per unit mass by a material from radiation or from secondary particles generated by radiation falling upon or penetrating the material;
- (d) "dosimeter" means a device that in the opinion of the minister may be reliably used for measuring or estimating dose;
- (d.1) "medical radiation technologist in training" means a person 16 years of age or over who is exposed routinely to ionizing radiation while receiving instruction in radiation technology and who is under the direct supervision of a fully qualified worker;
- (e) "rad" means a unit of dose and is such that a dose of one rad is realized when 100 ergs of energy have been absorbed per gram of material;
- (f) [Rep. by NLR 12/02 s1]
- (g) "rem" means a unit of dose equivalent as defined and used in the *Atomic Energy Control Regulations* (Canada) in relation to nuclear radiation and applicable as a unit of X-ray dose on the basis that one rem equals one rad;
- (h) "shield or shielding" means a material barrier interposed in the path of a flow of X-rays and having the effect of reducing the dose or dose rate experienced by an object located beyond the shield;

- (i) "student" means a person other than one referred to in paragraph (f) who is exposed to ionizing radiation during his or her educational activities; and
- (j) "X-rays" means artificially produced electromagnetic radiation of wave length shorter than 25 1,000/1,000,000 of a centimetre.

36/81 s2; [12/02 s1](#)

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### **Prohibition**

**3.** A person shall not operate or permit the operation of radiation equipment unless the equipment and installation comply with these regulations.

36/81 s3

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### **Exemption**

**4.** (1) The director may upon his or her own initiative or after consultation with the committee grant an exemption from the requirements of any section of these regulations for a specified period or purpose where, in his or her opinion, there is significant reason to do so.

(2) A request made to the director to be exempted from the requirements of a section of the regulations shall be in writing and shall include full details of the purpose of the request and the period for which the exemption is required.

36/81 s4

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### **Application for equipment registration**

**5.** (1) An owner registering radiation equipment with the director under section 5 of the Act shall use the form prescribed by the minister.

(2) An owner upon becoming aware of a change that would make inaccurate the information required under subsection (1) shall immediately notify the director in writing.

36/81 s5

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### **Certificate of registration**

**6.** (1) The director may issue a certificate of registration to an owner who registers with the director under section 5 of the Act.

(2) The director may incorporate in the certificate of registration at the time of issuance or at a later date those additional requirements and conditions with respect to the owner's receipt, possession, use and transfer of radiation equipment as he or she considers appropriate or necessary.

36/81 s6

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### **Application for approval certificate**

**7.** (1) An owner of a radiation installation who applies to the minister for approval under section 9 of the Act shall use the form prescribed by the minister.

(2) The owner shall notify the director in writing and obtain his or her approval before making a change which would render the information contained in the prescribed form inaccurate.

36/81 s7

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### Issuance of approval certificate

8. (1) Upon determining that an owner meets the requirements, that the director considers appropriate for a radiation installation, the minister may issue a certificate of approval for the radiation installation.

(2) Notwithstanding that the minister has issued a certificate of approval he or she may require additional modifications should a subsequent analysis of operating conditions indicate the possibility of an individual receiving a radiation dose in excess of the maximum permissible dose specified in these regulations.

36/81 s8

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### Application for registration certificate

9. (1) A person

- (a) engaged in the business of selling, supplying or servicing radiation equipment; or
- (b) intending to engage in the selling, supplying or servicing of radiation equipment, prior to offering those services,

shall apply for a certificate of registration.

(2) An application for registration shall be completed on the form prescribed by the minister.

(3) A person who sells, leases, transfers, lends, disposes, assembles or installs radiation equipment in the province shall notify the director within 30 days of

- (a) the name and address of the person who received the radiation equipment;
- (b) the manufacture, model and serial number of each item of radiation equipment transferred; and
- (c) the date of transfer of each item of radiation equipment.

(4) A person shall not make, sell, lease, transfer, lend, assemble or install radiation equipment or supplies used in conjunction with the equipment unless those supplies and equipment when properly placed in operation and used meet the requirements of these regulations.

36/81 s9

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### Operation by unqualified persons prohibited

10. (1) A person shall not use a radiation installation or radiation equipment for the irradiation of human subjects unless that irradiation is prescribed.

(2) A person shall not prescribe the use of radiation equipment for the irradiation of human subjects unless that person is

- (a) a medical practitioner as defined by the *Medical Act* ;

(a.1) a nurse practitioner licensed under the *Registered Nurses Act* ;

(b) a practitioner as defined by the *Dental Act* ; or

(c) a chiropractor as defined by the *Chiropractors Act*.

(3) A person shall not use a radiation installation or radiation equipment for the irradiation of human subjects unless that person is

(a) a medical practitioner as defined by the *Medical Act* ;

(b) a practitioner as defined by the *Dental Act* ;

(c) registered as a medical radiation technologist by the Canadian Association of Medical Radiation Technologists;

(d) a graduate of the Combined Medical Laboratory X-Ray Course;

(e) a person who is using the radiation installation or radiation equipment under the direct supervision of a practitioner as defined by the *Dental Act* ; or

(f) a chiropractor as defined by the *Chiropractors Act*.

(4) Notwithstanding subsection (3), a person who is

(a) undergoing a course of instruction in radiation technology approved by the minister; or

(b) a candidate for certification as a medical radiation technologist by the Canadian Association of Medical Radiation Technologists

may, under the instruction or direction of a person referred to in subsection (3), operate radiation equipment for the irradiation of human subjects.

(5) A person who has completed a course of instruction in radiation technology approved by the minister and is authorized by the director may, in circumstances or places where the services of a person authorized by subsection (3) to use radiation equipment cannot reasonably be made available, operate radiation equipment for the irradiation of human subjects.

74/86 s1; 145/88 s1; 5/95 ss1&2; [12/02 s2](#)

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### **Irradiation of non-human subjects**

**11.** A person shall not use or prescribe the use of a radiation installation or any radiation equipment for the irradiation of other than human subjects unless that person

(a) is registered in the province as a veterinarian;

(b) is authorized by the minister to operate the equipment;

(c) is certified as a senior industrial radiographer or junior radiographer in accordance with the current standards for certification of industrial radiographer personnel issued by the Canadian Government Specification Board; or

(d) is

(i) acting under the direct supervision of a person referred to in paragraph (a), (b) or (c),

(ii) over 16 years of age, and

- (iii) a student undergoing a genuine course in a radiation installation relating to the operation of radiation equipment under safety supervision satisfactory to the minister.

36/81 s11

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### **Minimum age for radiation worker**

**12.** (1) An owner shall not employ a person as a radiation worker unless that person is at least 18 years of age.

(2) Subsection (1) does not apply to a person employed as a medical radiation technologist in training.

36/81 s12; [12/02 s3](#)

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### **Maximum dose for radiation workers and others**

**13.** (1) Radiation workers shall not be exposed to ionizing radiation in excess of the maximum permissible dose as set out in the Schedule, Parts I and II, to these regulations.

(2) A medical radiation technologist in training shall not receive while being so occupied a dose of the gonads and bone marrow in excess of 500 millirem in a one year period.

(3) A student under 16 years of age shall not receive a dose to the gonads and bone marrow in excess of 100 millirem in a one year period during the course of receiving training.

(4) A student 16 years of age or over shall not receive a dose to the gonads and bone marrow in excess of 500 millirem in a one year period in the course of required training.

(5) A radiation worker, or a medical radiation technologist in training or student who is pregnant or who suspects she is pregnant shall not while occupied as a radiation worker or a medical radiation technologist in training or a student receive a dose to the abdomen in excess of 500 millirem during the remaining period of pregnancy.

(6) A person in charge of an experiment or training demonstration in which radiation equipment is being used shall so plan the experiment or demonstration that a person exposed to radiation from that experiment during the experiment or demonstration shall not receive more than 10 millirem.

36/81 s13; [12/02 s4](#)

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### **Personnel monitoring and record keeping**

**14.** (1) The radiation dose received by radiation workers, medical radiation technologists in training or students shall be systemically checked using personnel dosimeters approved by the minister or other procedure acceptable to the minister.

(2) A person employing a radiation worker or in charge of training being received by a medical radiation technologist or in charge of training or being received by a student shall maintain a separate record for each radiation worker, medical radiation technologist in training or student indicating the extent to which the radiation worker, medical radiation technologist in training or student has been exposed to ionizing radiation on a continuous permanent basis and those records shall be subject to examination upon the request of the director.

[12/02 s5](#)

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### Procedure in case of pregnancy

**15.** (1) A radiation worker, a medical radiation technologist in training or a student who knows or suspects that she is pregnant shall report those facts or suspicion to her employer or the person in charge of her training.

(2) Where the pregnant person desires to continue in employment or training, the employer or person in charge of her employment or training may, together with the pregnant person, reassess and revise as indicated the employment duties or training activities to ensure the maximum permissible dose for a pregnant person is not exceeded.

36/81 s15; [12/02 s6](#)[Back to Top](#)

### Safety instructions

**16.** (1) The owner of radiation equipment shall, before a radiation worker uses the radiation equipment or before a radiation worker enters a space where radiation is used, provide the worker with safety instructions covering

- (a) the safe operation of the equipment;
- (b) the protective procedures to be followed;
- (c) the use of protective equipment; and
- (d) procedures to be followed in the event of an accident.

(2) The safety instructions shall be in writing, and

- (a) shall be posted near the control of the equipment; or
- (b) shall be given in individual copies to the worker.

(3) The safety instructions shall identify

- (a) the owner or a person employed by the owner who is entitled by these regulations to control radiation exposures to human beings; or
- (b) a person who has satisfied the minister as to his or her ability to ensure compliance with instructions and maintenance of physical and procedural radiation hazard control.

(4) The owner or persons employed and identified by him or her according to subsection (3) shall satisfy themselves by adequate supervision or review that the instructions have been understood and are being followed.

(5) The radiation worker shall follow the safety instructions given to him or her by the owner.

(6) There shall be a prominent warning system and appropriate warning symbol outside the door of each room where radiation equipment is installed.

36/81 s16

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### Manufacturing or design shortcomings

**17.** Where radiation equipment and associated apparatus has, subsequent to its manufacture, been discovered to be hazardous and as a result it has been necessary to remove or replace any assembly or components, the supplier of the radiation equipment and associated apparatus shall notify the director in writing specifying

- (a) the name and mailing address of the supplier;
- (b) the name and address of the owner to whom the equipment is about to be or has been transferred;
- (c) the identification and brand name of the equipment;
- (d) the model and serial number or other identification number of the equipment; and
- (e) the actions which have been taken by the supplier to remove from operation or to retrofit the assembly or equipment.

36/81 s17

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### **Accident reporting**

**18.** Where a radiation or non-radiation accident reported or known to a supplier or owner of radiation equipment and associated apparatus has caused injury to a person arising from the manufacturing, testing or use of radiation equipment and associated apparatus, the supplier or owner shall notify the director in writing specifying

- (a) the date and location at which the accident occurred;
- (b) the manufacturer, type and model number of the radiation equipment and associated apparatus involved;
- (c) the circumstances surrounding and the causes of the accident;
- (d) the number of persons involved or adversely affected;
- (e) the nature and magnitude of the injuries to those persons if requested by the director;
- (f) the name of persons involved; and
- (g) the action which may have been taken by the suppliers or owner to control, correct or eliminate the causes and to prevent recurrence of the accident.

36/81 s18

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### **Equipment construction, installation and maintenance**

**19.** (1) The construction and design of radiation equipment shall

- (a) meet the requirements of the federal government regulations and safety standards considered appropriate by the director; and
- (b) have the approval of the minister.

(2) A radiation installation shall be so designed and constructed that the radiation levels in controlled areas occupied by radiation workers only are such that a radiation worker shall not be exposed to more than 100 millirem per week and that the radiation levels in uncontrolled areas are such that a person shall not be exposed to more than 10 millirem per week.



(3) An owner shall make arrangements for his or her radiation equipment and associated apparatus to be inspected in a manner and to a degree satisfactory to the director for the purpose of maintaining the electrical, mechanical and radiation safety of that equipment and associated apparatus.

(4) A supplier of radiation equipment and associated apparatus and every owner who maintains radiation equipment and associated apparatus shall provide the director with a copy of recommended maintenance schedules and inspection check lists that have been established by the manufacturer or that have been devised for use by the owner for that radiation equipment and associated apparatus.

(5) A supplier or owner of radiation equipment and associated apparatus shall, after it is installed and before operating for routine use and following a change which alters the radiation output, submit a radiation survey report including the inspection of the electrical and mechanical components of that equipment to the director.

(6) An owner of radiation equipment shall submit a radiation survey report

(a) every 2 years; or

(b) at more frequent intervals if requested in writing by the director,

and include in the survey report data on the inspection of the electrical and mechanical components.

36/81 s19

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### **Operating procedures for medical radiation equipment**

**20.** (1) Before an examination using radiation equipment is undertaken there shall be

(a) a clear cut clinical indication that an examination is necessary; and

(b) inquiries made as to previous radiological examinations, the records of which may render that examination unnecessary.

(2) Radiation exposure to patients is to be as low as reasonably possible consistent with the established diagnostic procedures.

(3) Mobile radiation equipment shall be used only for examination where it is impractical to transfer the patient to a stationary radiation installation.

(4) Proper gonadal shielding shall be used for all examinations except those where it would obstruct the field of interest.

(5) Radiographs shall not be taken of a woman in the reproductive age group unless the referring physician is satisfied that there is no possibility of her being pregnant or that she has passed the 12th week since conception.

(6) Where the medical condition of a woman referred to in subsection (5) requires immediate radiological diagnosis regardless of her reproductive status, every effort shall be made to protect the reproductive organs by shielding and collimation if they are not in the area of interest.

(7) Information regarding a woman's condition under subsections (5) and (6) shall be noted on the requisition before the examination is done and shall be kept on file with the patient's records.

36/81 s20

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## Review of regulations

**21.** The Radiation Health and Safety Advisory Committee shall review these regulations periodically and make those recommendations to the minister that are indicated by the review.

36/81 s21

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## Repeal

**22.** The Radiation Health and Safety Regulations, 1981, Newfoundland Regulation 36/81, are repealed.

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## Schedule

### Part I

#### Maximum Permissible Dose Accumulation by Radiation Workers

Organ, Tissue or Body Region Subject to Radiation Exposure	Category of Radiation Worker	Doses Accumulation Period (Consecutive Weeks)	Maximum Permissible Accumulated Dose in Organ or Region in Relevant Period
Pelvic and abdominal	1	13	1.3 rads
		52	5 rads
Pelvic and abdominal	2	balance of term	0.5 rads
Bone Marrow	1,2,3	13	3 rads
Whole body and gonads	3	13	3 rads
		52	5 rads
Skin, bone, thyroid	1,2,3	13	15 rads
		52	30 rads
Hands and forearms, feet and ankles	1,2,3	13	38 rads
		52	75 rads
Other single organ	3	13	8 rads
		52	15 rads
Other single organ (not pelvic or abdominal)	1,2	13	8 rads
		52	15 rads

Category 1 - Female radiation workers not known to be pregnant but in the child-bearing years.

Category 2 - Female radiation workers known to be pregnant.

Category 3 - All other radiation workers.

NOTE: Where a radiation worker is also an 'atomic energy worker' as defined in the *Atomic Energy Control Regulations* (Canada), the maximum combined permissible dose accumulation from ionizing radiation and from other radiations having a similar effect on the body can be read from this Schedule on substitution of the word "rems" for the word "rads".

**Part II**  
**Maximum Permissible Dose Accumulation by Persons Who are not Radiation Workers**

<b>Organ or Tissue Subject to Radiation Exposure</b>	<b>Maximum Permissible Dose Accumulated in Organ or Tissue in one year</b>
Whole body, gonads and bone-marrow	0.5 rads
Skin, bone, thyroid	3 rads
Hands and forearms, feet and ankles	7.5 rads
Other single organs	1.5 rads

36/81 App. D&E

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