

Title 33

ENVIRONMENTAL QUALITY

Part XV. Radiation Protection

Chapter 3. Licensing of Radioactive Material

Subchapter D. Specific Licenses

§326. Special Requirements for Issuance of Certain Specific Licenses for Radioactive Material

A. – A.8. ...

B. ~~Reserved~~Security Requirements for Portable Gauges. Each portable gauge licensee shall use a minimum of two independent physical controls that form tangible barriers to secure portable gauges from unauthorized removal, whenever portable gauges are not under the control and constant surveillance of the licensee.

C. – E.1.k. ...

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:2001 et seq.

HISTORICAL NOTE: Promulgated by the Department of Environmental Quality, Nuclear Energy Division, LR 13:569 (October 1987), amended by the Office of Air Quality and Radiation Protection, Radiation Protection Division, LR 18:34 (January 1992), LR 24:2092 (November 1998), amended by the Office of Environmental Assessment, Environmental Planning Division, LR 26:2569 (November 2000), LR 27:1228 (August 2001), LR 30:1188 (June 2004), amended by the Office of Environmental Assessment, LR 31:45 (January 2005), amended by the Office of the Secretary, Legal Affairs Division, LR 31:2525 (October 2005), LR 33:2178 (October 2007), LR 34:**.

Title 33

ENVIRONMENTAL QUALITY

Part XV. Radiation Protection

Chapter 1. General Provisions

§102. Definitions and Abbreviations

As used in these regulations, these terms have the definitions set forth below. Additional definitions used only in a certain chapter may be found in that chapter.

* * *

Authorized Medical Physicist—an individual who meets the requirements in LAC 33:XV.763.J.1 and M, or who is identified as an authorized medical physicist or teletherapy physicist on:

1. – 4. ...

* * *

Preceptor—an individual who provides, ~~or directs,~~ or verifies the training and experience required for an individual to become an authorized user, an authorized medical physicist, an authorized nuclear pharmacist, or a radiation safety officer.

* * *

Radiation Safety Officer—~~an individual who~~ one who has the knowledge and responsibility to apply appropriate radiation protection principles and regulations to control exposure to individuals and the environment. A radiation safety officer shall be identified on:

1. meets the requirements in LAC 33:XV.763.A.1 or 3.a and M; or
2. is identified as a radiation safety officer on:
 4. a. a specific medical use license issued by the agreement state or

Nuclear Regulatory Commission; or

2. b. a medical use permit issued by a Nuclear Regulatory Commission master material licensee.

* * *

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Chapter 7. Use of Radionuclides in the Healing Arts

§725. Release of Individuals Containing Radiopharmaceuticals or Permanent Implants

A. A licensee may authorize the release from its control of any individual who has been administered unsealed byproduct material~~radiopharmaceutical~~ or ~~permanent~~-implants containing byproduct~~radioactive~~ material if the total effective dose equivalent to any other individual from exposure to the released individual is not likely to exceed 5 millisieverts (0.5 rem).

Note: The current revision of NUREG-1556, Vol. 9, "Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Medical Licenses," describes methods for calculating doses to other individuals and contains tables of activities not likely to cause doses exceeding 5 mSv (0.5 rem).

B. A licensee shall provide the released individual, or the individual's parent or guardian, with instructions, including written instructions, on actions recommended to maintain

doses to other individuals as low as is reasonably achievable if the total effective dose equivalent to any other individual is likely to exceed 1 millisievert (0.1 rem). If the total effective dose equivalent to a breast-feeding infant or child could exceed 1 millisievert (0.1 rem) assuming there were no interruption of breast-feeding, the instructions shall also include:

1. guidance on the interruption or discontinuation of breast-feeding; and
2. information on the potential consequences, if any, of failure to follow the

guidance.

C. The licensee shall maintain a record of the basis for authorizing the release of an individual in accordance with Subsections A and B of this Section for three years after the date of release of the individual, if the total effective dose equivalent is calculated by:

1. - 4. ...

D. The licensee shall maintain a record for three years after the date of release of the individual that the instructions required by Subsection B of this Section were provided to a breast-feeding woman if the radiation dose to the infant or child from continued breast-feeding could result in a total effective dose equivalent exceeding 5 millisieverts (0.5 rem).

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HISTORICAL NOTE: Promulgated by the Department of Environmental Quality, Office of Air Quality and Radiation Protection, Radiation Protection Division, LR 18:34 (January 1992), amended LR 24:2104 (November 1998), amended by the Office of the Secretary, Legal Affairs Division, LR 34:**.

§729. Use of Radiopharmaceuticals for Uptake, Dilution, or Excretion Studies

A. – C.1 ...

2. prepared by an authorized nuclear pharmacist; a physician who is an authorized user and who meets the requirements specified in LAC 33:XV.763.D, or E.1 and D.3.a.ii.(f), or, before October 24, 2005, LAC 33:XV.763.DC; or an individual under the

supervision of either as specified in LAC 33:XV.709;

3. – 4. ...

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:2001 et seq.

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§731. Use of Radiopharmaceuticals, Generators, and Reagent Kits for Imaging and

Localization Studies

A. – G.4. ...

H. Use of Unsealed Byproduct Material for Imaging and Localization Studies for

Which a Written Directive is not Required

1. Except for quantities that require a written directive under LAC

33:XV.777.B, a licensee may use any unsealed byproduct material prepared for medical use for imaging and localization studies that is:

a. obtained from a manufacturer or preparer licensed under LAC

33:XV.328.J or equivalent agreement state requirements; or

b. prepared by:

i. an authorized nuclear pharmacist;

ii. a physician who is an authorized user and who meets the

requirements specified in LAC 33:XV.763.D, or E.1 and D.3.a.ii.(f); or

iii. an individual under the supervision, as specified in LAC

33:XV.709, of the authorized nuclear pharmacist in Clause H.1.b.i of this Section or the

physician who is an authorized user in accordance with Clause H.1.b.ii of this Section;

c. obtained from and prepared by an NRC or agreement state licensee for use in research in accordance with a Radioactive Drug Research Committee-approved protocol or an Investigational New Drug (IND) protocol accepted by the FDA; or

d. prepared by the licensee for use in research in accordance with a Radioactive Drug Research Committee-approved application or an IND protocol accepted by the FDA.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:2001 et seq.
HISTORICAL NOTE: Promulgated by the Department of Environmental Quality, Office of Air Quality and Radiation Protection, Radiation Protection Division, LR 18:34 (January 1992), amended LR 24:2104 (November 1998), amended by the Office of Environmental Assessment, Environmental Planning Division, LR 26:2589 (November 2000), LR 27:1238 (August 2001), LR 30:1178 (June 2004), amended by the Office of the Secretary, Legal Affairs Division, LR 34:**.

§763. Training

A. Training for a Radiation Safety Officer. Except as provided in Subsection B of this Section, the licensee shall require an individual fulfilling the responsibilities of the radiation safety officer as provided in LAC 33:XV.706 to be an individual shall:

1. who is be certified by at the specialty board whose certification process has been recognized by the commission or an agreement state, and who meets the requirements in Paragraphs A.4 and 5 of this Section. (The names of board certifications that have been recognized by the commission or an agreement state will be posted on the NRC's web page.) To have its certification process recognized, a specialty board shall require all candidates for certification to:

a. meet the requirements of Clauses A.1.a.i-iii of this Section, as follows:

i. hold a bachelor's or graduate degree from an accredited

college or university in physical science or engineering or biological science with a minimum of 20 college credits in physical science;

ii. have five or more years of professional experience in health physics (graduate training may be substituted for no more than two years of the required experience) including at least three years in applied health physics; and

iii. pass an examination administered by diplomates of the specialty board, which evaluates knowledge and competence in radiation physics and instrumentation, radiation protection, mathematics pertaining to the use and measurement of radioactivity, radiation biology, and radiation dosimetry; or

b. meet the requirements of Clauses A.1.b.i-iii of this Section, as follows:

i. hold a master's or doctor's degree in physics, medical physics, another physical science, engineering, or applied mathematics from an accredited college or university;

ii. have two years of full-time practical training and/or supervised experience in medical physics:

(a). under the supervision of a medical physicist who is certified in medical physics by a specialty board recognized by the commission or an agreement state; or

(b). in a clinical nuclear medicine facility providing diagnostic and/or therapeutic services under the direction of a physician who meets the requirements for an authorized user in Subsection D or Paragraph E.1 of this Section; and

iii. pass an examination, administered by diplomates of the

specialty board, that assesses knowledge and competence in clinical diagnostic radiological or nuclear medicine physics and in radiation safety; or

- a. ~~American Board of Health Physics in Comprehensive Health Physics;~~
- b. ~~American Board of Radiology in Radiological Physics, Therapeutic Radiological Physics, or Medical Nuclear Physics;~~
- e. ~~American Board of Nuclear Medicine;~~
- d. ~~American Board of Science in Nuclear Medicine;~~
- e. ~~Board of Pharmaceutical Specialties in Nuclear Pharmacy;~~
- f. ~~American Board of Medical Physics in Radiation Oncology Physics;~~
- g. ~~Royal College of Physicians and Surgeons of Canada in Nuclear Medicine;~~
- h. ~~American Osteopathic Board of Radiology; or~~
- i. ~~American Osteopathic Board of Nuclear Medicine; or~~

2. who has completed a structured educational program consisting of both have had 200 hours of classroom and laboratory training as follows:

- a. 200 hours of classroom and laboratory training in the following areas:
 - a. i. radiation physics and instrumentation;
 - b. ii. radiation protection;
 - e. iii. mathematics pertaining to the use and measurement of radioactivity;

- d. iv. radiation biology; and
- e. v. radiation dosimetry radiopharmaceutical chemistry; and
- f. one year of full-time experience in radiation safety at a medical

institution under the supervision of the individual identified as the radiation safety officer on a department, agreement state, licensing state, or Nuclear Regulatory Commission license that authorizes the medical use of radioactive material; or

b. one year of full-time radiation safety experience under the supervision of the individual identified as the radiation safety officer on a commission or agreement state license or permit issued by a commission master material licensee that authorizes similar type(s) of use(s) of byproduct material involving the following:

i. shipping, receiving, and performing related radiation surveys;

ii. using and performing checks for proper operation of instruments used to determine the activity of dosages, survey meters, and instruments used to measure radionuclides;

iii. securing and controlling byproduct material;

iv. using administrative controls to avoid mistakes in the administration of byproduct material;

v. using procedures to prevent or minimize radioactive contamination and using proper decontamination procedures;

vi. using emergency procedures to control byproduct material;

and

vii. disposing of byproduct material; or

c. Reserved

3. ~~be an authorized user for those radioactive material uses that come within the radiation safety officer's responsibilities~~ who meets one of the following requirements:

a. is a medical physicist who has been certified by a specialty board whose certification process has been recognized by the commission or an agreement state in accordance with Subsection J of this Section, and who has experience in radiation safety for similar types of use of byproduct material for which the licensee is seeking the approval of the individual as radiation safety officer, and who meets the requirements in Paragraphs A.4 and 5 of this Section; or

b. is an authorized user, authorized medical physicist, or authorized nuclear pharmacist identified on the licensee's license and has experience with the radiation safety aspects of similar types of use of byproduct material for which the individual has radiation safety officer responsibilities; and

4. who has obtained written attestation, signed by a preceptor radiation safety officer, that the individual has satisfactorily completed the requirements in Paragraph A.5 and in Clauses A.1.a.i and ii or Clauses A.1.b.i and ii or Paragraph A.2 or Subparagraph A.3.a or b of this Section, and has achieved a level of radiation safety knowledge sufficient to function independently as a radiation safety officer for a medical use licensee; and

5. who has training in the radiation safety, regulatory issues, and emergency procedures for the types of use for which a licensee seeks approval. This training requirement may be satisfied by completing training that is supervised by a radiation safety officer, authorized medical physicist, authorized nuclear pharmacist, or authorized user, as appropriate, who is authorized for the type(s) of use for which the licensee is seeking approval.

B. Training for Experienced Radiation Safety Officer, Teletherapy or Medical Physicist, Authorized Medical Physicist, Authorized User, Nuclear Pharmacist, and Authorized Nuclear Pharmacist

1. An individual identified as a radiation safety officer, a teletherapy or medical physicist, or a nuclear pharmacist on an ~~department~~, agreement state, ~~licensing state~~, or a Nuclear Regulatory Commission license or a permit issued by a commission or an agreement state broad scope licensee or master material license permit or by a master material license permittee of broad scope before October 24, 2002, on February 20, 1991, who oversees only the use of radioactive material for which the licensee was authorized on that date need not comply with the training requirements of Subsection A, J, or K of this Section, respectively~~Subsection A of this Section.~~

2. An individual identified as a radiation safety officer, an authorized medical physicist, or an authorized nuclear pharmacist on a commission or an agreement state license or a permit issued by a commission or an agreement state broad scope licensee or a master material license permit or by a master material license permittee of broad scope between October 24, 2002 and April 29, 2005, need not comply with the training requirements of Subsection A, J, or K of this Section, respectively.

3. A radiation safety officer, a medical physicist, or a nuclear pharmacist, who used only accelerator-produced radioactive materials, discrete sources of radium-226, or both, for medical uses or in the practice of nuclear pharmacy at a government agency or federally-recognized Indian tribe before November 30, 2007, or at any other location of use before August 8, 2009, or an earlier date as noticed by the NRC, need not comply with the training requirements of Subsection A, J, or K of this Section, respectively, when performing the

same uses. A nuclear pharmacist, who prepared only radioactive drugs containing accelerator-produced radioactive materials, or a medical physicist, who used only accelerator-produced radioactive materials, at the locations and time period identified in this Paragraph, qualifies as an authorized nuclear pharmacist or an authorized medical physicist, respectively, for those materials and uses performed before these dates, for purposes of this Chapter.

4. A physician, dentist, or podiatrist identified as an authorized user for the medical use of byproduct material on a license issued by the commission or agreement state, a permit issued by a commission master material licensee, a permit issued by a commission or an agreement state broad scope licensee, or a permit issued by a commission master material license broad scope permittee before October 24, 2002, who performs only those medical uses for which he or she was authorized on that date need not comply with the training requirements of this Section.

5. A physician, dentist, or podiatrist identified as an authorized user for the medical use of byproduct material on a license issued by the commission or agreement state, a permit issued by a commission master material licensee, a permit issued by a commission or an agreement state broad scope licensee, or a permit issued by a commission master material license broad scope permittee who performs only those medical uses for which he or she was authorized between October 24, 2002 and April 29, 2005, need not comply with the training requirements of this Section.

6. A physician, dentist, or podiatrist who used only accelerator-produced radioactive materials, discrete sources of radium-226, or both, for medical uses performed at a government agency or federally-recognized Indian tribe before November 30, 2007, or at any other location of use before August 8, 2009, or an earlier date as noticed by the NRC, need not

comply with the training requirements of this Section when performing the same medical uses. A physician, dentist, or podiatrist who used only accelerator-produced radioactive materials, discrete sources of radium-226, or both, for medical uses at the locations and time period identified in this Paragraph, qualifies as an authorized user for those materials and uses performed before these dates, for purposes of this Chapter.

C. Training for Uptake, Dilution, and Excretion Studies. Except as provided in Subsections ~~BM~~ and ~~LN~~ of this Section, the licensee shall require the authorized user of unsealed byproduct material~~a radiopharmaceutical~~ for the uses authorized~~listed~~ in LAC 33:XV.729 to be a physician ~~who~~:

1. who is certified in~~by~~ a medical specialty board whose certification process has been recognized by the commission or an agreement state, and who meets the requirements in Subparagraph C.3.b of this Section. (The names of board certifications that have been recognized by the commission or an agreement state will be posted on the NRC's web page.) To have its certification process recognized, a specialty board shall require all candidates for certification to:

a. complete 60 hours of training and experience in basic radionuclide handling techniques and radiation safety applicable to the medical use of unsealed byproduct material for uptake, dilution, and excretion studies that includes the topics listed in Clauses C.3.a.i-ii of this Section;~~and nuclear medicine by the American Board of Nuclear Medicine;~~

b. pass an examination, administered by diplomates of the specialty board, that assesses knowledge and competence in radiation safety, radionuclide handling, and quality control;~~or diagnostic radiology by the American Board of Radiology;~~

e. ~~diagnostic radiology or radiology within the previous five years by~~

~~the American Osteopathic Board of Radiology;~~

~~d. nuclear medicine by the American Osteopathic Board of Nuclear
Medicine; or~~

~~e. nuclear medicine by the Royal College of Physicians and Surgeons
of Canada; or~~

2. who is an authorized user under Subsection D or Paragraph E.1 of this
Section, or equivalent agreement state requirements, or Subparagraph C.3.a of this Section;

3. who meets the following requirements:

~~2. a. has completed 6040 hours of training and experience, including a
minimum of eight hours of classroom and laboratory training, instruction in basic radionuclide
handling techniques applicable to the medical use of unsealed byproduct material for uptake,
dilution, and excretion studies, prepared radiopharmaceuticals, The training and 20 hours of
supervised clinical experience must include:~~

~~a. i. to satisfy the basic instruction requirement, 40 hours of
classroom and laboratory training instruction shall include in the following areas:~~

~~i. (a). radiation physics and instrumentation;~~

~~ii. (b). radiation protection;~~

~~iii. (c). mathematics pertaining to the use and measurement
of radioactivity;~~

~~(d). chemistry of byproduct material for medical use;~~

and

~~iv. (e). radiation biology; and~~

~~v. radiopharmaceutical chemistry;~~

b. ii. ~~to satisfy the requirement for 20 hours of supervised clinical work experience, training shall be under the supervision of an authorized user at a medical institution and shall include~~ who meets the requirements in Subsection C or D or Paragraph E.1 of this Section, or equivalent agreement state requirements, involving:

i. (a). ordering, receiving, and unpacking radioactive materials safely and performing the related radiation surveys~~examining patients or human research subjects and reviewing their case histories to determine their suitability for radionuclide diagnosis, limitations, or contraindications;~~

ii. (b). performing quality control procedures on instruments used to determine the activity of dosages and performing checks for proper operation of survey meters~~selecting the suitable radiopharmaceuticals and calculating and measuring the dosages;~~

iii. (c). calculating, measuring, and safely preparing patients~~administering dosages to patients or human research subjects~~ dosages~~and using syringe radiation shields;~~

iv. (d). using administrative controls to prevent a medical event involving the use of unsealed byproduct material~~collaborating with the authorized user in the interpretation of radionuclide test results; and~~

v. (e). using procedures to contain spilled byproduct material safely and using proper decontamination procedures~~patient or human research subject follow-up; and~~

(f). administering dosages of radioactive drugs to patients or human research subjects; and

b. has obtained written attestation, signed by a preceptor authorized user who meets the requirements in Subsection C or D or Paragraph E.1 of this Section, or equivalent agreement state requirements, that the individual has satisfactorily completed the requirements in Subparagraph C.1.a or C.3.a of this Section and has achieved a level of competency sufficient to function independently as an authorized user for the medical uses authorized in LAC 33:XV.729.

~~3. has successfully completed a six-month training program in nuclear medicine as part of a training program that has been approved by the Accreditation Council for Graduate Medical Education and that included classroom and laboratory training, work experience, and supervised clinical experience in all the topics identified in Subparagraph C.2.b of this Section.~~

D. Training for Imaging and Localization Studies. Except as provided in Subsections BM and LN of this Section, the licensee shall require the authorized user of unsealed byproduct material a radiopharmaceutical, generator, or reagent kit specified in LAC 33:XV.731 for the uses authorized in LAC 33:XV.731.H to be a physician ~~who~~:

1. who is certified by a medical specialty board whose certification process has been recognized by the commission or an agreement state, and who meets the requirements in Subparagraph D.3.b of this Section. ~~is:~~ (The names of board certifications that have been recognized by the commission or an agreement state will be posted on the NRC's web page.) To have its certification process recognized, a specialty board shall require all candidates for certification to:

a. complete 700 hours of training and experience in basic radionuclide handling techniques and radiation safety applicable to the medical use of unsealed

byproduct material for imaging and localization studies that includes the topics listed in Clauses D.3.a.i-ii of this Section~~nuclear medicine by the American Board of Nuclear Medicine; and~~

b. pass an examination, administered by diplomates of the specialty board, that assesses knowledge and competence in radiation safety, radionuclide handling, and quality control~~diagnostic radiology by the American Board of Radiology; or~~

e. ~~diagnostic radiology or radiology within the previous five years by the American Osteopathic Board of Radiology;~~

d. ~~nuclear medicine by the American Osteopathic Board of Nuclear Medicine; or~~

e. ~~nuclear medicine by the Royal College of Physicians and Surgeons of Canada; or~~

2. who is an authorized user under Paragraph E.1 of this Section, and meets the requirements in Subclause D.3.a.ii.(f) of this Section, or equivalent agreement state requirements; or

32. who meets the following requirements:

a. has completed 700200 hours of training and experience, including a minimum of 80 hours of classroom and laboratory training, instruction in basic radionuclide handling techniques applicable to the medical use of unsealed byproduct material for imaging and localization studies. The training and experience must include, at a minimum prepared radiopharmaceuticals, generators, and reagent kits; 500 hours of supervised work experience; and 500 hours of supervised clinical experience:

a. i. to satisfy the basic instruction requirement, 200 hours of classroom and laboratory training in the following areas shall include:

i. (a). radiation physics and instrumentation;
ii. (b). radiation protection;
iii. (c). mathematics pertaining to the use and measurement of radioactivity;

iv. (d). chemistry of byproduct material for medical useradiopharmaceutical chemistry; and

v. (e). radiation biology; and
vi. ~~certification by the physician that he or she participated in the required number of hours and has successfully passed an appropriate written examination given by the certifying institution;~~

b. ii. ~~to satisfy the requirement for 500 hours of supervised work experience, training shall be under the supervision of an authorized user, who meets the requirements in this Subsection, or Subclause D.3.a.ii.(f) and Paragraph E.1 of this Section, or equivalent agreement state requirements, involving at a medical institution and shall include:~~

i. (a). ordering, receiving, and unpacking radioactive materials safely and performing the related radiation surveys;

ii. (b). performing quality control procedures on instruments used to determine the activity of dosagescalibrating dose calibrators and diagnostic instruments and performing checks for proper operation of survey meters;

iii. (c). calculating, measuring, and safely preparing patient or human research subject dosages;

iv. (d). using administrative controls to prevent a medical event involving the use of unsealed byproductradioactive material;

v. (e). using ~~emergency~~ procedures to safely contain spilled radioactive material ~~safely~~ and using proper decontamination procedures; ~~and~~

vi. (f). eluting ~~technetium-99m~~ from generator systems; appropriate for preparation of radioactive drugs for imaging and localization studies, measuring and testing the eluate for radionuclidic purity, and processing the eluate with reagent kits to prepare labeled radioactive drugs ~~assaying and testing the eluate for molybdenum-99 and alumina contamination, and processing the eluate with reagent kits to prepare technetium-99m labeled radio-pharmaceuticals; and~~

(g). administering dosages of radioactive drugs to patients or human research subjects; and

e. ~~to satisfy the requirement for 500 hours of supervised clinical experience, training shall be under the supervision of an authorized user at a medical institution and shall include:~~

i. ~~examining patients or human research subjects and reviewing their case histories to determine their suitability for radionuclide diagnosis, limitations, or contraindications;~~

ii. ~~selecting the suitable radiopharmaceuticals and calculating and measuring the dosages;~~

iii. ~~administering dosages to patients or human research subjects and using syringe radiation shields;~~

iv. ~~collaborating with the authorized user in the interpretation of radionuclide test results; and~~

v. ~~patient or human research subject follow-up; or~~

b. has obtained written attestation, signed by a preceptor authorized user who meets the requirements in this Subsection, or Paragraph E.1 and Subclause D.3.a.ii.(f) of this Section, or equivalent agreement state requirements, that the individual has satisfactorily completed the requirements in Subparagraph D.1.a or D.3.a of this Section and has achieved a level of competency sufficient to function independently as an authorized user for the medical uses authorized in LAC 33:XV.729 and LAC 33:XV.731.H.

~~3. has successfully completed a six-month training program in nuclear medicine that has been approved by the Accreditation Council for Graduate Medical Education and that included classroom and laboratory training, work experience, and supervised clinical experience in all the topics identified in Paragraph D.2 of this Section.~~

E. Therapeutic Use of Radiopharmaceuticals-

1. Training for Use of Unsealed Byproduct Material for Which a Written Directive is Required. Except as provided in Subsection BM of this Section, the licensee shall require the authorized user of unsealed byproduct material~~a radiopharmaceutical listed in LAC 33:XV.735~~ for the use~~therapy~~ authorized in LAC 33:XV.735.C to be a physician ~~who~~:

4. a. who is certified by a medical specialty board whose certification process has been recognized by the commission or an agreement state, and who meets the requirements in Division E.1.b.i.(b).(vii) and Clause E.1.b.ii of this Section. (Specialty boards whose certification processes have been recognized by the commission or an agreement state will be posted on the NRC's web page.) To be recognized, a specialty board shall require all candidates for certification to:

a. i. the American Board of Nuclear Medicine~~successfully~~ complete residency training in a radiation therapy or nuclear medicine training program or a

program in a related medical specialty. These residency training programs must include 700 hours of training and experience as described in Subclause E.1.b.i.(a) through Division E.1.b.i.(b).(v) of this Section. Eligible training programs must be approved by the Residency Review Committee of the Accreditation Council for Graduate Medical Education, the Royal College of Physicians and Surgeons of Canada, or the Committee on Post-Graduate Training of the American Osteopathic Association; and

b. ii. the American Board of Radiology in radiology, therapeutic radiology, or radiation oncology pass an examination, administered by diplomates of the specialty board, that tests knowledge and competence in radiation safety, radionuclide handling, quality assurance, and clinical use of unsealed byproduct material for which a written directive is required; or

e. the Royal College of Physicians and Surgeons of Canada in nuclear medicine; or

d. the American Osteopathic Board of Radiology after 1984; or

b. who meets the following requirements:

2. i. has completed 70080 hours of instruction training and experience, including a minimum of 200 hours of classroom and laboratory training, in basic radionuclide handling techniques applicable to the medical use of therapeutic radiopharmaceuticals unsealed byproduct material requiring a written directive, and has had supervised clinical experience
The training and experience must include:

a. (a). to satisfy the requirement for instruction, 80 hours of classroom and laboratory training shall include in the following areas:

i. (i). radiation physics and instrumentation;

ii. (ii). radiation protection;

iii. (iii). mathematics pertaining to the use and measurement of radioactivity; ~~and~~

(iv). chemistry of byproduct material for medical use; and

iv. (v). radiation biology; and

b. (b). ~~to satisfy the requirement for supervised clinical work experience, training shall be under the supervision of an authorized user at a medical institution and shall include~~ who meets the requirements in this Paragraph, or equivalent agreement state requirements. A supervising authorized user, who meets the requirements in Subparagraph E.1.b of this Section, must also have experience in administering dosages in the same dosage category or categories (i.e., Division E.1.b.i.(b).(vii) of this Section) as the individual requesting authorized user status. The work experience must involve:

i. (i). ~~use of iodine-131 for diagnosis of thyroid function and the treatment of hyperthyroidism or cardiac dysfunction in 10 individuals~~ ordering, receiving, and unpacking radioactive materials safely and performing the related radiation surveys;

ii. (ii). ~~use of soluble phosphorus-32 for the treatment of ascites, polycythemia vera, leukemia, or bone metastases in three individuals~~ performing quality control procedures on instruments used to determine the activity of dosages and performing checks for proper operation of survey meters;

iii. (iii). ~~use of iodine-131 for treatment of thyroid carcinoma in three individuals~~ calculating, measuring, and safely preparing patient or human

research subject dosages; and

iv. (iv). use of colloidal chromic phosphorus-32 or of colloidal gold-198 for intracavitary treatment of malignant effusions in three individuals. using administrative controls to prevent a medical event involving the use of unsealed byproduct material;

(v). using procedures to contain spilled byproduct material safely and using proper decontamination procedures;

(vi). [Reserved]

(vii). administering dosages of radioactive drugs to patients or human research subjects involving a minimum of three cases in each of the following categories for which the individual is requesting authorized user status:

[a]. oral administration of less than or equal to 1.22 gigabecquerels (33 millicuries) of sodium iodide I-131, for which a written directive is required;

[b]. oral administration of greater than 1.22 gigabecquerels (33 millicuries) of sodium iodide I-131 (Experience with at least three such cases also satisfies the requirement in Subdivision E.1.b.i.(b).(vii).[a] of this Section.);

[c]. parenteral administration of any beta emitter, or a photon-emitting radionuclide with a photon energy less than 150 keV, for which a written directive is required; and/or

[d]. parenteral administration of any other radionuclide, for which a written directive is required; and

ii. has obtained written attestation that the individual has

satisfactorily completed the requirements in Clause E.1.a.i and Division E.1.b.i.(b).(vii) or Clause E.1.b.i of this Section, and has achieved a level of competency sufficient to function independently as an authorized user for the medical uses authorized in LAC 33:XV.735.C. The written attestation must be signed by a preceptor authorized user who meets the requirements in this Paragraph or equivalent agreement state requirements. The preceptor authorized user who meets the requirements in Subparagraph E.1.b of this Section must have experience in administering dosages in the same dosage category or categories (i.e., Division E.1.b.i.(b).(vii) of this Section) as the individual requesting authorized user status.

2. Training for the Oral Administration of Sodium Iodide I-131 Requiring a Written Directive in Quantities Less Than or Equal To 1.22 Gigabecquerels (33 Millicuries). Except as provided in Subsection B of this Section, the licensee shall require an authorized user for the oral administration of sodium iodide I-131 requiring a written directive in quantities less than or equal to 1.22 gigabecquerels (33 millicuries) to be a physician:

a. who is certified by a medical specialty board whose certification process includes all of the requirements in Clauses E.2.c.i and ii of this Section and whose certification process has been recognized by the commission or an agreement state, and who meets the requirements in Clause E.2.c.iii of this Section. (The names of board certifications that have been recognized by the commission or an agreement state will be posted on the NRC's web page.); or

b. who is an authorized user in accordance with Paragraph E.1 of this Section for uses listed in Subdivision E.1.b.i.(b).(vii).[a] or [b] of this Section, Paragraph E.3 of this Section, or equivalent agreement state requirements; or

c. who meets the following requirements:

i. has successfully completed 80 hours of classroom and laboratory training, applicable to the medical use of sodium iodide I-131 for procedures requiring a written directive. The training must include:

(a). radiation physics and instrumentation;

(b). radiation protection;

(c). mathematics pertaining to the use and measurement of radioactivity;

(d). chemistry of byproduct material for medical use;

and

(e). radiation biology; and

ii. has work experience, under the supervision of an authorized user who meets the requirements in Paragraph E.1, 2, or 3 of this Section, or equivalent agreement state requirements. A supervising authorized user who meets the requirements in Subparagraph E.1.b of this Section must also have experience in administering dosages as specified in Subdivision E.1.b.i.(b).(vii).[a] or [b] of this Section. The work experience must involve:

(a). ordering, receiving, and unpacking radioactive materials safely and performing the related radiation surveys;

(b). performing quality control procedures on instruments used to determine the activity of dosages and performing checks for proper operation of survey meters;

(c). calculating, measuring, and safely preparing patient or human research subject dosages;

(d). using administrative controls to prevent a medical event involving the use of byproduct material;

(e). using procedures to contain spilled byproduct material safely and using proper decontamination procedures; and

(f). administering dosages to patients or human research subjects that includes at least three cases involving the oral administration of less than or equal to 1.22 gigabecquerels (33 millicuries) of sodium iodide I-131; and

iii. has obtained written attestation that the individual has satisfactorily completed the requirements in Clauses E.2.c.i and ii of this Section, and has achieved a level of competency sufficient to function independently as an authorized user for medical uses authorized in LAC 33:XV.735.C. The written attestation must be signed by a preceptor authorized user who meets the requirements in Paragraph E.1, 2, or 3 of this Section, or equivalent agreement state requirements. A preceptor authorized user who meets the requirement in Subparagraph E.1.b of this Section must also have experience in administering dosages as specified in Subdivision E.1.b.i.(b).(vii).[a] or [b] of this Section.

3. Training for the Oral Administration of Sodium Iodide I-131 Requiring a Written Directive in Quantities Greater Than 1.22 Gigabecquerels (33 Millicuries). Except as provided in Subsection B of this Section, the licensee shall require an authorized user for the oral administration of sodium iodide I-131 requiring a written directive in quantities greater than 1.22 Gigabecquerels (33 millicuries) to be a physician:

a. who is certified by a medical specialty board whose certification process includes all of the requirements in Clauses E.3.c.i and ii of this Section and whose certification process has been recognized by the commission or an agreement state, and who

meets the requirements in Clause E.3.c.iii of this Section. (The names of board certifications that have been recognized by the commission or an agreement state will be posted on the NRC's web page.); or

b. who is an authorized user in accordance with Paragraph E.1 of this Section for uses listed in Subdivision E.1.b.i.(b).(vii).[b] of this Section, or equivalent agreement state requirements; or

c. who meets the following requirements:

i. has successfully completed 80 hours of classroom and laboratory training, applicable to the medical use of sodium iodide I-131 for procedures requiring a written directive. The training must include:

(a). radiation physics and instrumentation;

(b). radiation protection;

(c). mathematics pertaining to the use and measurement of radioactivity;

(d). chemistry of byproduct material for medical use;

and

(e). radiation biology; and

ii. has work experience, under the supervision of an authorized user who meets the requirements in Paragraph E.1 or 3 of this Section, or equivalent agreement state requirements. A supervising authorized user who meets the requirements in Subparagraph E.1.b of this Section must also have experience in administering dosages as specified in Subdivision E.1.b.i.(b).(vii).[b] of this Section. The work experience must involve:

(a). ordering, receiving, and unpacking radioactive

materials safely and performing the related radiation surveys;

(b). performing quality control procedures on instruments used to determine the activity of dosages and performing checks for proper operation of survey meters;

(c). calculating, measuring, and safely preparing patient or human research subject dosages;

(d). using administrative controls to prevent a medical event involving the use of byproduct material;

(e). using procedures to contain spilled byproduct material safely and using proper decontamination procedures; and

(f). administering dosages to patients or human research subjects that includes at least three cases involving the oral administration of greater than 1.22 gigabecquerels (33 millicuries) of sodium iodide I-131; and

iii. has obtained written attestation that the individual has satisfactorily completed the requirements in Clauses E.3.c.i and ii of this Section, and has achieved a level of competency sufficient to function independently as an authorized user for medical uses authorized in LAC 33:XV.735.C. The written attestation must be signed by a preceptor authorized user who meets the requirements in Paragraph E.1 or 3 of this Section, or equivalent agreement state requirements. A preceptor authorized user who meets the requirements in Subparagraph E.1.b of this Section must also have experience in administering dosages as specified in Subdivision E.1.b.i.(b).(vii).[b] of this Section.

4. Training for the Parenteral Administration of Unsealed Byproduct Material Requiring a Written Directive. Except as provided in Subsection B of this Section, the

licensee shall require an authorized user for the parenteral administration requiring a written directive to be a physician:

a. who is an authorized user in accordance with Paragraph E.1 of this Section for uses listed in Subdivision E.1.b.i.(b).(vii).[c] or [d] of this Section, or equivalent agreement state requirements; or

b. who is an authorized user in accordance with Subsection F or I of this Section, or equivalent agreement state requirements, and who meets the requirements in Subparagraph E.4.d of this Section; or

c. who is certified by a medical specialty board whose certification process has been recognized by the commission or an agreement state in accordance with Subsection F or I of this Section, and who meets the requirements in Subparagraph E.4.d of this Section; or

d. who meets the following requirements:

i. has successfully completed 80 hours of classroom and laboratory training, applicable to parenteral administrations, for which a written directive is required, of any beta emitter, or any photon-emitting radionuclide with a photon energy less than 150 keV, and/or parenteral administration of any other radionuclide for which a written directive is required. The training must include:

(a). radiation physics and instrumentation;

(b). radiation protection;

(c). mathematics pertaining to the use and measurement of radioactivity;

(d). chemistry of byproduct material for medical use;

and

(e). radiation biology; and

ii. has work experience, under the supervision of an

authorized user who meets the requirements in Paragraph E.1 or 4 of this Section, or equivalent agreement state requirements, in the parenteral administration, for which a written directive is required, of any beta emitter, or any photon-emitting radionuclide with a photon energy less than 150 keV, and/or parenteral administration of any other radionuclide for which a written directive is required. A supervising authorized user who meets the requirements in Paragraph E.1 of this Section must have experience in administering dosages as specified in Subdivisions E.1.b.i.(b).(vii).[c] and/or [d] of this Section. The work experience must involve:

(a). ordering, receiving, and unpacking radioactive

materials safely and performing the related radiation surveys;

(b). performing quality control procedures on

instruments used to determine the activity of dosages and performing checks for proper operation of survey meters;

(c). calculating, measuring, and safely preparing patient

or human research subject dosages;

(d). using administrative controls to prevent a medical

event involving the use of unsealed byproduct material;

(e). using procedures to contain spilled byproduct

material safely and using proper decontamination procedures; and

(f). administering dosages to patients or human research

subjects, that include at least three cases involving the parenteral administration, for which a

written directive is required, of any beta emitter, or any photon-emitting radionuclide with a photon energy less than 150 keV, and/or at least three cases involving the parenteral administration of any other radionuclide for which a written directive is required; and

iii. has obtained written attestation that the individual has satisfactorily completed the requirements in Subparagraph E.4.b or c of this Section, and has achieved a level of competency sufficient to function independently as an authorized user for the parenteral administration of unsealed byproduct material requiring a written directive. The written attestation must be signed by a preceptor authorized user who meets the requirements in Paragraph E.1 or 4 of this Section, or equivalent agreement state requirements. A preceptor authorized user who meets the requirements in Paragraph E.1 of this Section must have experience in administering dosages as specified in Subdivisions E.1.b.i.(b).(vii).[c] and/or [d] of this Section.

F. Training for Therapeutic Use of Manual Brachytherapy Sources. Except as provided in Subsection ~~BM~~ of this Section, the licensee shall require the authorized user ~~using~~ of a manual brachytherapy source for the uses authorized specified in LAC 33:XV.741 for therapy to be a physician who:

1. who is certified by a medical specialty board whose certification process has been recognized by the commission or an agreement state, and who meets the requirements in Subparagraph F.2.d of this Section. (The names of board certifications that have been recognized by the commission or an agreement state will be posted on the NRC's web page.) To have its certification process recognized, a specialty board shall require all candidates for certification to:

a. radiology, therapeutic radiology, or radiation oncology by the

~~American Board of Radiology~~successfully complete a minimum of three years of residency training in a radiation oncology program approved by the Residency Review Committee of the Accreditation Council for Graduate Medical Education or the Royal College of Physicians and Surgeons of Canada or the Committee on Post-Graduate Training of the American Osteopathic Association; and

b. ~~radiation oncology by the American Osteopathic Board of Radiology~~pass an examination, administered by diplomates of the specialty board, that tests knowledge and competence in radiation safety, radionuclide handling, treatment planning, quality assurance, and clinical use of manual brachytherapy; or

e. ~~radiology, with a specialization in radiotherapy, as a British "Fellow of the Faculty of Radiology" or "Fellow of the Royal College of Radiology"; or~~

d. ~~therapeutic radiology by the Canadian Royal College of Physicians and Surgeons; or~~

2. who meets the following requirements:

2. a. is in the active practice of therapeutic radiology, has completed 200 hours of instructionhas completed a structured educational program in basic radionuclide handling techniques applicable to the ~~therapeutic~~ use of manual brachytherapy sources that includes and 500 hours of supervised work experience and a minimum of three years of supervised clinical experience:

a. i. to satisfy the requirement for instruction, 200 hours of classroom and laboratory training shall includein the following areas:

i. (a). radiation physics and instrumentation;

ii. (b). radiation protection;

iii. (c). mathematics pertaining to the use and measurement of radioactivity; and

iv. (d). radiation biology; and

b. ii. ~~to satisfy the requirement for 500 hours of supervised work experience, training shall be~~ under the supervision of an authorized user ~~at a medical institution and shall include~~ who meets the requirements in this Subsection, or equivalent agreement state requirements at a medical institution, involving:

i. (a). ordering, receiving, and unpacking radioactive materials safely and performing the related radiation surveys;

ii. (b). checking survey meters for proper operation;

iii. (c). preparing, implanting, and removing brachytherapy sealed sources;

(d). maintaining running inventories of material on hand;

iv. (e). using administrative controls to prevent a medical event involving the use of radioactive byproduct material; and

v. (f). using emergency procedures to control radioactive byproduct material; and

be. ~~to satisfy the requirement for a period~~ has completed three years of supervised clinical experience in radiation oncology; ~~training shall include one year in a formal training program approved by the Residency Review Committee for Radiology of the Accreditation Council for Graduate Medical Education or the Committee on Postdoctoral Training of the American Osteopathic Association, and an additional two years of clinical experience in~~

~~therapeutic radiology~~ under the supervision of an authorized user who meets the requirements in this Subsection, or equivalent agreement state requirements, as part of a formal training program approved by the Residency Review Committee for Radiation Oncology of the Accreditation Council for Graduate Medical Education or the Royal College of Physicians and Surgeons of Canada or the Committee on Postdoctoral Training of the American Osteopathic Association. This experience may be obtained concurrently with the supervised work experience required in Subparagraph F.2.b of this Section; and at a medical institution. ~~The supervised clinical experience shall include:~~

~~i. examining individuals and reviewing their case histories to determine their suitability for brachytherapy treatment, and any limitations or contraindications;~~

~~ii. selecting the proper brachytherapy sources, dose, and method of administration;~~

~~iii. calculating the dose; and~~

~~iv. post-administration follow-up and review of case histories in collaboration with the authorized user.~~

c. has obtained written attestation, signed by a preceptor authorized user who meets the requirements in this Subsection, or equivalent agreement state requirements, that the individual has satisfactorily completed the requirements in Subparagraph F.1.a, or Paragraph F.2 and Subparagraph F.2.c of this Section, and has achieved a level of competency sufficient to function independently as an authorized user of manual brachytherapy sources for the medical uses authorized in LAC 33:XV.741.

G. Training for Ophthalmic Use of Strontium-90. Except as provided in Subsection BM of this Section, the licensee shall require the authorized user ~~using only~~ of strontium-90 for

ophthalmic radiotherapy to be a physician-~~who~~:

1. who is certified in radiology, therapeutic radiology, or radiation oncology by the American Board of Radiology an authorized user in accordance with Subsection F of this Section, or equivalent agreement state requirements; or

2. who meets the following requirements:

2. a. ~~is in the active practice of therapeutic radiology or ophthalmology,~~ and has completed 24 hours of ~~instruction in basic radionuclide handling techniques~~ classroom and laboratory training applicable to the medical use of strontium-90 for ophthalmic radiotherapy. The training must include, and a period of supervised clinical training in ophthalmic radiotherapy:

a. ~~to satisfy the requirement for instruction, the classroom and laboratory training shall include:~~

i. radiation physics and instrumentation;

ii. radiation protection;

iii. mathematics pertaining to the use and measurement of radioactivity; and

iv. radiation biology; and

b. ~~to satisfy the requirement for a period of supervised clinical training in ophthalmic radiotherapy, training shall be under the supervision of an authorized user at a medical institution, clinic, or private practice that and shall includes the use of strontium-90 for the ophthalmic treatment of five individuals, that includes:~~ This supervised clinical training must involve:

i. examination of each individual to be treated;

- ii. calculation of the dose to be administered;
- iii. administration of the dose; and
- iv. follow-up and review of each individual's case history; and

c. has obtained written attestation, signed by a preceptor authorized

user who meets the requirements in Subsections F and G of this Section, or equivalent agreement state requirements, that the individual has satisfactorily completed the requirements in Paragraphs G.1 and 2 of this Section and has achieved a level of competency sufficient to function independently as an authorized user of strontium-90 for ophthalmic use.

H. Training for Use of Sealed Sources for Diagnosis. Except as provided in Subsection ~~BM~~ of this Section, the licensee shall require the authorized user ~~using~~ of a diagnostic sealed source for use in a device specified in authorized in LAC 33:XV.739 to be a physician, dentist, or podiatrist ~~who~~:

1. who is certified in by a specialty board whose certification process includes all of the requirements in Paragraphs H.2 and 3 of this Section and whose certification process has been recognized by the commission or an agreement state. (The names of board certifications that have been recognized by the commission or an agreement state will be posted on the NRC's web page.); or

a. ~~radiology, diagnostic radiology with special competence in nuclear radiology, therapeutic radiology, or radiation oncology by the American Board of Radiology;~~

b. ~~nuclear medicine by the American Board of Nuclear Medicine;~~

c. ~~diagnostic radiology or radiology by the American Osteopathic Board of Radiology; or~~

d. ~~nuclear medicine by the Royal College of Physicians and Surgeons~~

of Canada; or

2. who has completed eight hours of classroom and laboratory training instruction in basic radionuclide handling techniques specifically applicable to the use of the device. The training must include:

- a. ~~to satisfy the requirement for instruction, the training shall include:~~
 - a. ~~i. radiation physics, mathematics pertaining to the use and measurement of radioactivity, and instrumentation;~~
 - b. radiation protection;
 - c. mathematics pertaining to the use and measurement of radioactivity; and
 - d. ~~ii. radiation biology; and~~
 - iii. ~~radiation protection and training in the use of the device for the purposes authorized by the license.~~

3. who has completed training in the use of the device for the uses requested.

I. Training for Use of Remote Afterloader Units, Teletherapy Units, and Gamma Stereotactic Radiosurgery Units. Except as provided in Subsection ~~BM~~ of this Section, the licensee shall require the authorized user of a sealed source for a use authorized, specified in LAC 33:XV.747 in a teletherapy unit to be a physician who:

1. who is certified by a medical specialty board whose certification process has been recognized by the commission or an agreement state, and who meets the requirements in Subparagraph I.2.c and Paragraph I.3 of this Section. (The names of board certifications that have been recognized by the commission or an agreement state will be posted on the NRC's web page.) To have its certification process recognized, a specialty board shall require all candidates

for certification to:

a. successfully complete a minimum of three years of residency training in a radiation therapy program approved by the Residency Review Committee of the Accreditation Council for Graduate Medical Education or the Royal College of Physicians and Surgeons of Canada or the Committee on Post-Graduate Training of the American Osteopathic Association radiology, therapeutic radiology, or radiation oncology by the American Board of Radiology; and

b. pass an examination, administered by diplomates of the specialty board, that tests knowledge and competence in radiation safety, radionuclide handling, treatment planning, quality assurance, and clinical use of stereotactic radiosurgery, remote afterloaders, and external beam therapy radiation oncology by the American Osteopathic Board of Radiology;

e. radiology, with specialization in radiotherapy, as a British "Fellow of the Faculty of Radiology" or "Fellow of the Royal College of Radiology"; or

d. therapeutic radiology by the Canadian Royal College of Physicians and Surgeons; or

2. who meets the following requirements:

2. a. is in the active practice of therapeutic radiology, and has completed a structured educational program 200 hours of instruction in basic radionuclide techniques applicable to the use of a sealed source in a therapeutic medical teletherapy unit, 500 hours of supervised work experience, and a minimum of three years of supervised clinical experience that includes:

a. i. to satisfy the requirement for instruction, the 200 hours of classroom and laboratory training in the following areas shall include:

i. (a). radiation physics and instrumentation;
ii. (b). radiation protection;
iii. (c). mathematics pertaining to the use and measurement of radioactivity; and

iv. (d). radiation biology; and
b. ii. ~~to satisfy the requirement for supervised~~ 500 hours of work experience, training shall be under the supervision of an authorized user who meets the requirements in this Subsection, or equivalent agreement state requirements at an medical institution, involving and shall include:

i. (a). ~~reviewing of the~~ full calibration measurements and periodic spot-checks;
ii. (b). preparing treatment plans and calculating treatment doses and times;
iii. (c). using administrative controls to prevent a medical event involving the use of ~~byproduct~~ radioactive material;
iv. (d). implementing emergency procedures to be followed in the event of the abnormal operation of a ~~medical teletherapy~~ unit or console; ~~and~~
v. (e). checking and using survey meters; and
(f). selecting the proper dose and how it is to be administered; and

be. has completed three years ~~to satisfy the requirement for a period of supervised clinical experience in radiation therapy, training shall include one year in a formal training program approved by the Residency Review Committee for Radiology of the~~

~~Accreditation Council for Graduate Medical Education or the Committee on Postdoctoral Training of the American Osteopathic Association and an additional two years of clinical experience in therapeutic radiology under the supervision of an authorized user who meets the requirements in this Subsection, or equivalent agreement state requirements, as part of a formal training program approved by the Residency Review Committee for Radiation Oncology of the Accreditation Council for Graduate Medical Education or the Royal College of Physicians and Surgeons of Canada or the Committee on Postdoctoral Training of the American Osteopathic Association. This experience may be obtained concurrently with the supervised work experience required in Subparagraph I.2.b of this Section; and at a medical institution. The supervised clinical experience shall include:~~

- ~~i. examining individuals and reviewing their case histories to determine their suitability for teletherapy treatment, and any limitations or contraindications;~~
- ~~ii. selecting the proper dose and how it is to be administered;~~
- ~~iii. calculating the teletherapy doses and collaborating with the authorized user in the review of patients' or human research subjects' progress and consideration of the need to modify originally prescribed doses as warranted by patients' or human research subjects' reactions to radiation; and~~
- ~~iv. post-administration follow-up and review of case histories.~~

c. has obtained written attestation that the individual has satisfactorily completed the requirements in Subparagraph I.1.a or Paragraph I.2 and Subparagraph I.2.c, and Paragraph I.3 of this Section, and has achieved a level of competency sufficient to function independently as an authorized user of each type of therapeutic medical unit for which the individual is requesting authorized user status. The written attestation must be signed by a

preceptor authorized user who meets the requirements in this Subsection or equivalent agreement state requirements for an authorized user for each type of therapeutic medical unit for which the individual is requesting authorized user status; and

3. who has received training in device operation, safety procedures, and clinical use for the type(s) of use for which authorization is sought. This training requirement may be satisfied by satisfactory completion of a training program provided by the vendor for new users or by receiving training supervised by an authorized user or authorized medical physicist, as appropriate, who is authorized for the type(s) of use for which the individual is seeking authorization.

J. Training for an Authorized Medical Teletherapy Physicist. A teletherapy physicist shall meet the criteria in the definition of *radiological physicist* in LAC 33:XV:Chapter 1. Except as provided in Subsection B of this Section, the licensee shall require the authorized medical physicist to be an individual:

1. who is certified by a specialty board whose certification process has been recognized by the commission or an agreement state, and who meets the requirements in Subparagraph J.2.b and Paragraph J.3 of this Section. (The names of board certifications that have been recognized by the commission or an agreement state will be posted on the NRC's web page.) To have its certification process recognized, a specialty board shall require all candidates for certification to:

a. hold a master's or doctor's degree in physics, medical physics, another physical science, engineering, or applied mathematics from an accredited college or university;

b. have two years of full-time practical training and/or supervised

experience in medical physics:

i. under the supervision of a medical physicist who is certified in medical physics by a specialty board recognized by the commission or an agreement state; or

ii. in a clinical radiation facility providing high-energy, external beam therapy (photons and electrons with energies greater than or equal to 1 million electron volts) and brachytherapy services under the direction of a physician who meets the requirements for an authorized user in Subsection F or I of this Section; and

c. pass an examination, administered by diplomats of the specialty board, that assesses knowledge and competence in clinical radiation therapy, radiation safety, calibration, quality assurance, and treatment planning for external beam therapy, brachytherapy, and stereotactic radiosurgery; or

2. who meets the following requirements:

a. holds a master's or doctor's degree in physics, medical physics, another physical science, engineering, or applied mathematics from an accredited college or university, and has completed one year of full-time training in medical physics and an additional year of full-time work experience under the supervision of an individual who meets the requirements for an authorized medical physicist for the type(s) of use for which the individual is seeking authorization. This training and work experience must be conducted in a clinical radiation facility that provides high-energy, external beam therapy (photons and electrons with energies greater than or equal to 1 million electron volts) and brachytherapy services, and must include:

i. performing sealed source leak tests and inventories;

ii. performing decay corrections;

iii. performing full calibration and periodic spot checks of

external beam treatment units, stereotactic radiosurgery units, and remote afterloading units, as applicable; and

iv. conducting radiation surveys around external beam

treatment units, stereotactic radiosurgery units, and remote afterloading units, as applicable; and

b. has obtained written attestation that the individual has satisfactorily

completed the requirements in Subparagraphs J.1.a and b and Paragraph J.3, or Subparagraph

J.2.a and Paragraph J.3, of this Section, and has achieved a level of competency sufficient to

function independently as an authorized medical physicist for each type of therapeutic medical

unit for which the individual is requesting authorized medical physicist status. The written

attestation must be signed by a preceptor authorized medical physicist who meets the

requirements in this Subsection, or equivalent agreement state requirements for an authorized

medical physicist for each type of therapeutic medical unit for which the individual is requesting

authorized medical physicist status; and

3. who has training for the type(s) of use for which authorization is sought

that includes hands-on device operation, safety procedures, clinical use, and the operation of a

treatment planning system. This training requirement may be satisfied by satisfactorily

completing either a training program provided by the vendor or by training supervised by an

authorized medical physicist authorized for the type(s) of use for which the individual is seeking

authorization.

K. Training for an Authorized Nuclear Pharmacist. Except as provided in this

Subsection ~~the licensee shall require the authorized nuclear pharmacist to be a pharmacist who~~

either:

1. who is certified by a specialty board whose certification process has been recognized by the commission or an agreement state, and who meets the requirements in Subparagraph K.2.b of this Section. (The names of board certifications that have been recognized by the commission or an agreement state will be posted on the NRC's web page.) To have its certification process recognized, a specialty board shall require all candidates for certification to:~~has current board certification as a nuclear pharmacist by the Board of Pharmaceutical Specialties; or~~

a. have graduated from a pharmacy program accredited by the American Council on Pharmaceutical Education (ACPE) or have passed the Foreign Pharmacy Graduate Examination Committee (FPGEC) examination;

b. hold a current, active license to practice pharmacy;

c. provide evidence of having acquired at least 4000 hours of training and experience in nuclear pharmacy practice. Academic training may be substituted for no more than 2000 hours of the required training and experience; and

d. pass an examination in nuclear pharmacy administered by diplomates of the specialty board, that assesses knowledge and competency in procurement, compounding, quality assurance, dispensing, distribution, health and safety, radiation safety, provision of information and consultation, monitoring patient outcomes, research and development; or

2. who meets the following requirements:

2. ~~has obtained written certification, signed by a preceptor authorized nuclear pharmacist, that the individual has achieved a level of competency sufficient to independently~~

~~operate a nuclear pharmacy and that the individual~~

a. has completed 700 hours in a structured educational program

consisting of both:

~~a.~~ i. didactic training in the following areas:

~~i.~~ (a). radiation physics and instrumentation;

~~ii.~~ (b). radiation protection;

~~iii.~~ (c). mathematics pertaining to the use and measurement

of radioactivity;

~~iv.~~ (d). chemistry of byproduct material for medical use;

and

~~v.~~ (e). radiation biology; and

~~b.~~ ii. supervised practical experience in a nuclear pharmacy

involving the following:

~~i.~~ (a). shipping, receiving, and performing related

radiation surveys;

~~ii.~~ (b). using and performing checks for proper operation of

instruments used to determine the activity of dosages~~dose calibrators~~, survey meters, and if

appropriate, instruments used to measure alpha-emitting or beta-emitting radionuclides;

~~iii.~~ (c). calculating, assaying, and safely preparing dosages

for patients or human research subjects;

~~iv.~~ (d). using administrative controls to avoid medical

events~~mistakes~~ in the administration of byproduct material; and

~~v.~~ (e). using procedures to prevent or minimize radioactive

contamination and using proper decontamination procedures; and

b. has obtained written attestation, signed by a preceptor authorized nuclear pharmacist, that the individual has satisfactorily completed the requirements in Subparagraphs K.1.a, b, and c, or Paragraph K.2, of this Section and has achieved a level of competency sufficient to function independently as an authorized nuclear pharmacist.

~~L. Experienced Nuclear Pharmacists. A licensee may apply for and shall receive a license amendment identifying an experienced nuclear pharmacist as an authorized nuclear pharmacist before it allows this individual to work as an authorized nuclear pharmacist. A pharmacist who has completed a structured educational program, as specified in Subsection K of this Section, before December 2, 1994, and who is working in a nuclear pharmacy would qualify as an experienced nuclear pharmacist. An experienced nuclear pharmacist need not comply with the requirements on preceptor statement, as specified in Subsection K of this Section, and recentness of training, as specified in Subsection O of this Section, to qualify as an authorized nuclear pharmacist.~~

~~M. Experienced Authorized Users. Practitioners of the healing arts identified as authorized users for the human use of radioactive material on a department license on February 20, 1991, who perform only those methods of use for which they were authorized on that date need not comply with the training requirements of this Section.~~

~~LN. Physician Training in a Three-Month Program. A physician who, before July 1, 1984, began a three-month nuclear medicine training program approved by the Accreditation Council for Graduate Medical Education and has successfully completed the program, is exempted from the requirements of Subsection C or D of this Section.~~

MØ. Recentness of Training. The training and experience specified in Subsections A-

~~KL~~of this Section shall have been obtained within the seven years preceding the date of application, or the individual shall have had continuing applicable experience since the required training and experience was completed.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:2001 et seq.

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