Rulemaking Hearing Rules
Department of Environment and Conservation
Division of Radiological Health

Amendments

Chapter 1200–2–4
General Provisions

The last sentence of subparagraph (1)(a) of Rule 1200–2–4–.04 Definitions is amended by deleting the words "Appendix A to 10 CFR 71, as amended April 1, 1996," and substituting the words "Rule 1200–2–10–.37", so that as amended the sentence shall read:

> The values either are listed in Table A–1 of Rule 1200–2–10–.37 or may be derived in accordance with the procedures prescribed in Schedule 10–6, Rule 1200–2–10–.37.

Footnote [3] to subparagraph (1)(dd) of Rule 1200–2–4–.04 Definitions is amended by deleting "1200–5–.16(6)(b)" and substituting "subparagraph 1200–2–5–.162(1)(b)", so that as amended the footnote shall read:

> [3]Type X quantities are defined in Tables RHS 2–1, RHS 2–2 and RHS 2–3 as contained in Chapter 1200–2–5. For purposes of 1200–2–4–.04(dd), where there is involved a combination of radioactive materials licensed, the method of deriving a Type X quantity is as specified in subparagraph 1200–2–5–.162(1)(b).

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Rule 1200–2–4–.07 Communications is amended by deleting the rule in its entirety and substituting the following, so that as amended Rule 1200–2–4–.07 shall read:

1200–2–4–.07 Notifications, Reports and Other Communications.

(1) Address notifications and reports required by these regulations, communications concerning these regulations and applications filed thereunder as follows:

(a) Telephone notifications and communications, 7:00 a.m. Central Time to 4:30 p.m. Central Time, except weekends and holidays:

Division of Radiological Health 615–532–0364

(b) Telephone notifications, all other times:

Tennessee Emergency Management Agency (TEMA): 1–800–262–3300

(c) Applications, written notifications, reports and communications:

Division of Radiological Health
Tennessee Department of Environment and Conservation
L & C Annex, Third Floor
401 Church Street
Nashville, Tennessee 37243–1532

(d) Facsimile communications:

Division of Radiological Health 615–532–7938

(2) Reserved.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Rule 1200–2–4–.11 Posting of Notices to Employees is amended by adding Paragraph (3), which shall read:

(3) Form RHS 8–3 (Notice to Employees).

Form RHS 8-3

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

DIVISION OF RADIOLOGICAL HEALTH

NOTICE TO EMPLOYEES

In "STATE REGULATIONS FOR PROTECTION AGAINST RADIATION", The Tennessee Department of Environment and Conservation has established standards for your protection against radiation hazards and certain provisions for the option of workers engaged in work under licenses or registrations issued by the Department.

YOUR EMPLOYER'S RESPONSIBILITY

Your employer is required to–

1. Apply these regulations to work under the license or registration. Licenses and Certified Registrations contain special conditions which shall be considered in addition to these regulations.
2. Post or otherwise make available to you a copy of the regulations, licenses, registrations, and operating procedures which apply to work in which you are engaged, and explain their provisions to you.
3. Post any written notice from the Department that the regulations have been violated and response to such notice.

YOUR RESPONSIBILITY AS A WORKER

You should familiarize yourself with those provisions of the regulations, and the operating procedures which apply to the work in which you are engaged. You should observe their provisions for your own protection and protection of your co–workers.

AREAS COVERED BY THESE REGULATIONS

1. Limits on exposure to radiation and radioactive material in restricted and unrestricted areas;
2. Measures to be taken after accidental exposure;
3. Personnel monitoring, surveys and equipment;
4. Caution signs, labels and safety interlock equipment;
5. Exposure records and reports;
6. Option for workers regarding the Department's inspection; and
7. Related matters.

REPORTS ON YOUR RADIATION EXPOSURE HISTORY

1. The Department's regulations require that your employer give you a written report if you receive an exposure in excess of any applicable limit as set forth in the regulations or in the license. The basic limits for exposure to employees are set forth in Rules 1200–2–5–.50, 1200–2–5–.53 and 1200–2–5–.55 of the regulations. These rules specify limits on exposure to radiation and exposure to concentrations of radioactive material in air and water.
2. If you work where personnel monitoring is required and if you request information on your radiation exposures;

   a. your employer must advise you annually of your exposure to radiation; and

   b. your employer must give you a written report, following termination of your employment, of your radiation exposures.

INSPECTIONS

All licensed or registered activities are subject to inspection by representatives of the Department. In addition, any worker or representative of workers who believes that there is a violation of the regulations or the terms of the employer's license or registration with regard to radiological working conditions in which the worker is engaged, may request an inspection by sending a notice of the alleged violation to the Tennessee Department of Environment and Conservation, Division of Radiological Health, L & C Annex, 3rd Floor, 401 Church Street, Nashville, Tennessee 37243–1532. The request must set forth the specific grounds for the notice, and must be signed by the worker or the representative of the workers. During inspections, Department inspectors may confer privately with workers, and any worker may bring to the attention of the inspectors any past or present condition which he believes contributed to or caused any violation as described above.

POSTING REQUIREMENT

Copies of this notice must be posted in a sufficient number of places in every establishment where employees are employed in activities registered or licensed pursuant to Chapter 1200–2–10 to permit employees working in or frequenting any portion of a restricted area to observe a copy on the way to or from their place of employment.

The rulemaking hearing rules set out herein were properly filed in the Department of State on the 17th day of November, 2005, and will become effective on the 31st day of January, 2006.

Rulemaking Hearing Rules
Department of Environment and Conservation
Division of Radiological Health

New Rule

Chapter 1200–2–5 is amended by adding a new rule 1200–2–5–.162 Type X Quantities and Transport Groups to supersede Paragraph (6) of Rule 1200–2–5–.16 Procedures for Picking Up, Receiving, and Opening Packages. The new rule shall read:

Chapter 1200–2–5
Standards for Protection Against Radiation

Table of Contents

1200–2–5–.162 Type X Quantities and Transport Groups

(1) Transport group as used in this rule means any one of seven groups into which radionuclides in normal form are classified, according to their toxicity and their relative potential hazard in transport, in Table RHS 2–3.

(a) Any radionuclide, not specifically listed in one of the groups in Table RHS 2–3 shall be assigned to one of the groups in accordance with Table RHS 2–2.

(b) For mixtures of radionuclides the following shall apply:

1. If the identity and respective activity of each radionuclide are known, the permissible activity of each radionuclide shall be such that the sum, for all groups present, of the ratio between the total activity for each group to the permissible activity for each group will not be greater than unity.

2. If the groups of the radionuclides are known, but the activity in each group cannot be reasonably determined, the mixture shall be assigned to the most restrictive group present.

3. If the identity of all or some of the radionuclides cannot be reasonably determined, each of the unidentified radionuclides shall be considered as belonging to the most restrictive group that cannot be positively excluded.

4. Mixtures consisting of a single radioactive decay chain where the radionuclides are in the naturally occurring proportions shall be considered as consisting of a single radionuclide. The group and activity shall be that of the first member present in the chain, except that if a radionuclide “x” has a half–life longer than that of the first member and an activity greater than that of any other member, including the first, at any time during transportation, the group of the nuclide “x” and the activity of the mixture shall be the maximum activity of that nuclide “x” during transportation.

TABLE RHS 2–1 TYPE X QUANTITIES

Transport Group	Type X Quantity Limit (in curies)
I	0.001
II	0.050
III	3
IV	20
V	20
VI	1,000
VII	1,000
Special Form	20

TABLE RHS 2–2

Radionuclide	Radioactive half–life		
	0 to 1,000 days	1,000 days to one million years	over one million years
Atomic Number 1–81	Group III	Group II	Group III
Atomic Number 82 and Over	Group I	Group I	Group III

TABLE RHS 2–3 TRANSPORT GROUPING OF RADIONUCLIDES

Element *	Radionuclide ***	Group
Actinium (89)	Ac–227	I
	Ac–228	I
Americium (95)	Am–241	I
	Am–243	I
Antimony (51)	Sb–122	IV
	Sb–124	III
	Sb–125	III
Argon (18)	Ar–37	VI
	Ar–41	II
	Ar–41 (uncompressed) **	V
Arsenic (33)	As–73	IV
	As–74	IV
	As–76	IV
	As–77	IV
Astatine (85)	At–211	III
Barium (56)	Ba–131	IV
	Ba–133	II
	Ba–140	III
Berkelium (97)	Bk–249	I

* *Atomic number shown in parentheses.*

*** *Atomic weight shown after the radionuclide symbol.*

** *Uncompressed means at a pressure not exceeding one atmosphere.*

Element *	Radionuclide ***	Group
Beryllium (4)	Be–7	IV
Bismuth (83)	Bi–206	IV
	Bi–207	III
	Bi–210	II
	Bi–212	III
Bromine (35)	Br –82	IV
Cadmium (48)	Cd–109	IV
	Cd–115 [m]	III
	Cd–115	IV
Calcium (20)	Ca–45	IV
	Ca–47	IV
Californium (98)	Cf–249	I
	Cf–250	I
	Cf–252	I
Carbon (6)	C–14	IV
Cerium (58)	Ce–141	IV
	Ce–143	IV
	Ce–144	III
Cesium (55)	Cs–131	IV
	Cs–134 [m]	III
	Cs–134	III
	Cs–135	IV
	Cs–136	IV
	Cs–137	III
Chlorine (17)	Cl–36	III
	Cl–38	IV
Chromium (24)	Cr–51	IV
Cobalt (27)	Co–56	III
	Co–57	IV
	Co–58 [m]	IV
	Co–58	IV
	Co–60	III
Copper (29)	Cu–64	IV
Curium (96)	Cm–242	I
	Cm–243	I
	Cm–244	I
	Cm–245	I
	Cm–246	I
Dysprosium (66)	Dy–154	III
	Dy–165	IV
	Dy–166	IV
Erbium (68)	Er–169	IV
	Er–171	IV
Europium (63)	Eu–130	III
	Eu–152[m]	IV
	Eu–152	III
	Eu–154	II
	Eu–155	IV
Fluorine (9)	F–18	IV
Gadolinium (64)	Gd–153	IV

[m] *Metastable State.*

Element [*]	Radionuclide [***]	Group
	Gd–159	IV
Gallium (31)	Ga–67	III
	Ga–72	IV
Germanium (32)	Ge–71	IV
Gold (79)	Au–193	III
	Au–194	III
	Au–195	III
	Au–196	IV
	Au–198	IV
	Au–199	IV
Hafnium (72)	Hf–181	IV
Holmium (67)	Ho–166	IV
Hydrogen (1)	H–3 (see tritium)	
Indium (49)	In–113 [m]	IV
	In–114 [m]	III
	In–115 [m]	IV
	In–115	IV
Iodine (53)	I–124	IV
	I–125	III
	I–126	III
	I–129	III
	I–131	III
	I–132	IV
	I–133	III
	I–134	IV
	I–135	IV
Iridium (77)	Ir–190	IV
	Ir–192	III
	Ir–194	IV
Iron (26)	Fe–55	IV
	Fe–59	IV
Krypton (36)	Kr–85 [m]	III
	Kr–85 [m] (uncompressed) [**]	V
	Kr–85	III
	Kr–85 (uncompressed) [**]	II
	Kr–87 (uncompressed) [**]	V
Lanthanum (57)	La–140	IV
Lead (82)	Pb–203	IV
	Pb–210	II
	Pb–212	II
Lutetium (71)	Lu–172	IV
	Lu–177	IV
Magnesium (12)	Mg–28	IV
Manganese (25)	Mn–52	IV
	Mn–54	IV
	Mn–56	IV
Mercury (80)	Hg–197 [m]	IV
	Hg–197	IV
	Hg–203	IV

[**] *Uncompressed means at a pressure not exceeding one atmosphere.*

[m] *Metastable State.*

Element [*]	Radionuclide [***]	Group
Mixed fission products (MFP)		II
Molybdenum (42)	Mo–99	IV
Neodymium (60)	Nd–147	IV
	Nd–149	IV
Neptunium (93)	Np–237	I
	Np–239	I
Nickel (28)	Ni–56	III
	Ni–59	IV
	Ni–63	IV
	Ni–65	IV
Niobium (41)	Nb–93 [m]	IV
	Nb–95	IV
	Nb–97	IV
Osmium (76)	Os–185	IV
	Os–191 [m]	IV
	Os–191	IV
	Os–193	IV
Palladium (46)	Pd–103	IV
	Pd–109	IV
Phosphorus (15)	P–32	IV
Platinum (78)	Pt–191	IV
	Pt–193	IV
	Pt–193 [m]	I
	Pt–197 [m]	IV
	Pt–197	IV
Plutonium (94)	Pu–238 [(F)]	I
	Pu–239 [(F)]	I
	Pu–240	I
	Pu–241 [(F)]	I
	Pu–242	I
Polonium (84)	Po–210	I
Potassium (19)	K–42	IV
	K–43	III
Praseodymium (59)	Pr–142	IV
	Pr–143	IV
Promethium (61)	Pm–147	IV
	Pm–149	IV
Protactinium (91)	Pa–230	I
	Pa–231	I
	Pa–233	II
Radium (88)	Ra–223	II
	Ra–224	II
	Ra–226	I
	Ra–228	I
Radon (86)	Rn–220	IV
	Rn–222	II
Rhenium (75)	Re–183	IV
	Re–186	IV
	Re–187	IV
	Re–188	IV
	Re Natural	IV

[(F)] *Fissile material.*

Element [*]	Radionuclide [***]	Group
Rhodium (45)	Rh–103 [m]	IV
	Rh–105	IV
Rubidium (37)	Rb–86	IV
	Rb–87	IV
	Rb Natural	IV
Ruthenium (44)	Ru–97	IV
	Ru–103	IV
	Ru–105	IV
	Ru–106	III
Samarium (62)	Sm–145	III
	Sm–147	III
	Sm–151	IV
	Sm–153	IV
Scandium (21)	Sc–46	III
	Sc–47	IV
	Sc–48	IV
Selenium (34)	Se–75	IV
Silicon (14)	Si–31	IV
Silver (47)	Ag–105	IV
	Ag–110 [m]	III
	Ag–111	IV
Sodium (11)	Na–22	III
	Na–24	IV
Strontium (38)	Sr–85 [m]	IV
	Sr–85	IV
	Sr–89	III
	Sr–90	II
	Sr–91	III
	Sr–92	IV
Sulfur (16)	S–35	IV
Tantalum (73)	Ta–182	III
Technetium (43)	Tc–96[m]	IV
	Tc–96	IV
	Tc–97 [m]	IV
	Tc–97	IV
	Tc–99 [m]	IV
	Tc–99	IV
Tellurium (52)	Te–125 [m]	IV
	Te–127 [m]	IV
	Te–127	IV
	Te–129 [m]	III
	Te–129	IV
	Te–131 [m]	III
	Te–132	IV
Terbium (65)	Tb–160	III
Thallium (81)	Tl–200	IV
	Tl–201	IV
	Tl–202	IV
	Tl–204	III

[m] *Metastable State.*

[m] *Metastable State.*

Element [*]	Radionuclide [***]	Group
Thorium (90)	Th–227	II
	Th–228	I
	Th–230	I
	Th–231	I
	Th–232	III
	Th–234	II
	Th Natural	III
Thulium (69)	Tm–168	III
	Tm–170	III
	Tm–171	IV
Tin (50)	Sn–113	IV
	Sn–117 [m]	III
	Sn–121	III
	Sn–125	IV
Tritium (1)	H–3	IV
	H–3 (as a gas, as luminous paint, or absorbed on solid material)	VII
Tungsten (74)	W–181	IV
	W–185	IV
	W–187	IV
Uranium (92)	U–230	II
	U–232	I
	U–233 (F)	II
	U–234	II
	U–235 (F)	III
	U–236	II
	U–238	III
	U Natural	III
	U Enriched [(F)]	III
	U Depleted	III
Vanadium (23)	V–48	IV
	V–49	III
Xenon (54)	Xe–125	III
	Xe–131 [m]	III
	Xe–131 [m] (uncompressed) [**]	V
	Xe–133	III
	Xe–133 (uncompressed) [**]	VI
	Xe–135	II
	Xe–135 (uncompressed) [**]	V
Ytterbium (70)	Yb–175	IV
Yttrium (39)	Y–88	III
	Y–90	IV
	Y–91 [m]	III
	Y–91	III
	Y–92	IV
	Y–93	IV
Zinc (30)	Zn–65	IV
	Zn–69 [m]	IV

[(F)] *Fissile material.*

[**] *Uncompressed means at a pressure not exceeding one atmosphere.*

[m] *Metastable State.*

Element *	Radionuclide ***	Group
	Zn–68	IV
	Zn–69	IV
Zirconium (40)	Zr–93	IV
	Zr–95	III
	Zr–97	IV

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Chapter 1200–2–5
Standards for Protection Against Radiation

Rule 1200–2–5–.30 Purpose is amended by deleting the words "(herein Basic Standards)". The word "standards" is substituted for each occurrence of the words "Basic Standards". As amended the rule shall read:

(1) The regulations in 1200–2–5–.30 through 1200–2–5–.162 establish standards for protection against ionizing radiation. These standards are issued under Tennessee Code Annotated (T.C.A.) 4–5–201 et seq. and 68–202–203 and 206, as amended. These standards are also issued to meet the Nuclear Regulatory Commission's requirements for compatibility as set out in 42 United States Code Annotated (USCA) Section 2021(d)(2) and 10 CFR 20. It is the intent of the Division of Radiological Health of the Tennessee Department of Environment and Conservation that these rules enable the State of Tennessee to maintain its compatibility as an Agreement State. This principle should be considered, when relevant, in any interpretation of these rules. To that end, judicial or administrative interpretation of corresponding rules in other jurisdictions should be given persuasive authority.

(2) The purpose of these standards is to control the receipt, possession, use, transfer and disposal of sources of radiation by any person. This is done so that the total dose to an individual from all sources of radiation other than background radiation does not exceed these standards. However, nothing in these standards shall be construed as limiting a licensee's or registrant's actions that may be necessary to protect health and safety during an emergency.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Rule 1200–2–5–.31 Scope is amended by substituting the word "standards" for the words "Basic Standards", so that as amended the rule shall read:

These standards apply to all persons who receive, possess, use, transfer or dispose of sources of radiation within the jurisdiction of the State of Tennessee. The limits in these standards do not apply to doses due to background radiation or to exposure of patients to radiation for medical diagnosis or therapy.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Paragraphs (7) and (78) of Rule 1200–2–5–.32 Definitions is amended by substituting the word "standards" for the words "Basic Standards", so that as amended the paragraphs shall read:

(7) 'ALARA' (acronym for 'as low as is reasonably achievable') means making every reasonable effort to maintain exposures to radiation as far below the dose limits in these standards as is

practical consistent with the purpose for which the activity is undertaken and taking into account:

(78) 'Year' means the period of time beginning in January used to determine compliance with the provisions of these standards. The licensee or registrant may change the starting date of the year used to determine compliance by the licensee or registrant provided that the change is made at the beginning of the year and that no day is omitted or duplicated in consecutive years.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Paragraphs (1) and (2) of Rule 1200–2–5–.33 Units of Radiation Dose is amended by substituting the word "standards" for the words "Basic Standards", so that as amended the paragraphs shall read:

(1) Definitions. As used in these standards the units of radiation dose are:

(2) As used in these standards the quality factors for converting absorbed dose to dose equivalent are shown in Table RHS 5–1.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Paragraph (1) of Rule 1200–2–5–.34 Units of Radioactivity is amended by substituting the word "standards" for the words "Basic Standards", so that as amended the paragraph shall read:

For the purposes of these standards, activity is expressed in the special unit of curies (Ci) or in the SI unit of becquerels (Bq), or their multiples, or disintegrations (transformations) per unit of time.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Rule 1200–2–5–.36 is deleted in its entirety.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

The first sentence of paragraph (1) of Rule 1200–2–5–.40 Radiation Protection Programs is amended by substituting the word "standards" for the words "Basic Standards", so that as amended the sentence shall read:

Each licensee and registrant shall develop, document and implement a radiation protection program for a licensee's or registrant's activities that ensures compliance with these standards.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Rule 1200–2–5–.59 Reserved is amended by deleting the rule in its entirety and substituting the following to supersede Rule 1200–2–5–.09 Order Requiring Furnishing of Bioassay Services, so that as amended Rule 1200–2–5–.59 shall read:

1200–2–5–.59 Order Requiring Furnishing of Bioassay Services

Where necessary to ascertain the extent of an individual's exposure to concentrations of radioactive material, the Division may require a licensee to make available to the individual bioassay services and to furnish a copy of the reports of such services to the Division.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Subparagraph (1)(a) and paragraph (3) of Rule 1200–2–5–.70 General Survey and Monitoring Requirements is amended by substituting the word "standards" for the words "Basic Standards", so that as amended the subparagraph and paragraph shall read:

(1) (a) May be necessary for the licensee or registrant to comply with the standards in this chapter; and

(3) Except for direct and indirect reading pocket ionization chambers and those dosimeters used to measure the dose to the extremities, all personnel dosimeters for determining the dose and used to comply with these standards or with conditions specified in a license or registration shall be processed and evaluated by a dosimetry processor:

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Subparagraph (6)(a) of Rule 1200–2–5–.80 Control of Access to High Radiation Areas Requirements is amended by substituting the word "standards" for the words "Basic Standards", so that as amended the subparagraph shall read:

There are personnel in attendance who will take necessary precautions to prevent exposure of individuals to radiation or radioactive material in excess of the limits in these standards; and

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Subparagraph (1)(b) and part (1)(h)7. of Rule 1200–2–5–.82 Control of Access to Very High Radiation Areas–Irradiators is amended by substituting the word "standards" for the words "Basic Standards", so that as amended the subparagraph and part shall read:

(1) (b) Each installation shall have primary barriers and/or secondary barriers sufficient to assure compliance with 1200–2–5–.50, 1200–2–5–.55, 1200–2–5–.56 and 1200–2–5–.60 of these standards.

(h) 7. No individual shall be permitted to enter an area, the access of which is controlled by interlocks, while such interlocks are bypassed as permitted in 1200–2–5–.82(1)(h)5, unless such individual is utilizing personnel monitoring equipment that shall give an audible indication when a dose rate of .015 rem (.15 mSv) per hour is exceeded. The personnel monitoring equipment referred to in this paragraph is in addition to that required elsewhere in these standards. Calibration requirements in 1200–2–5–.70(2) shall also apply to such personnel monitoring equipment.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Subparagraph (9)(a) of Rule 1200–2–5–.111 Posting Requirements is amended by substituting the word "standards" for the words "Basic Standards", so that as amended the subparagraph shall read:

(9) (a) The registrant exercises control to ensure the patient will be the only person exposed to radiation levels exceeding the limits in these standards; and

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Subparagraph (1)(b) of Rule 1200–2–5–.114 Exemptions to Labeling Requirements is amended by deleting "Table 3" and substituting "Table 2", so that as amended the subparagraph shall read:

Containers holding radioactive material in concentrations less than those specified in Table 2 of Schedule RHS 8–30;

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Paragraphs (1) through (4) of Rule 1200–2–5–.115 Procedures for Receiving and Opening Packages are amended by deleting the paragraphs and substituting the following, so that as amended the paragraphs shall read:

(1) Each licensee who expects to receive a package containing quantities of radioactive material in excess of a Type A quantity, as defined in subparagraph 1200–2–4–.04(1)(iii), shall arrange to receive:

(a) The package when the carrier offers it for delivery; or

(b) Notification of the arrival of the package at the carrier's terminal and to take possession of the package expeditiously.

(2) Each licensee shall:

(a) Monitor the external surfaces of a labeled [5] package for radioactive contamination unless the package contains only radioactive material in the form of a gas or in special form as defined in subparagraph 1200–2–4–.04(1)(bbb);

(b) Monitor the external surfaces of a labeled package for radiation levels unless the package contains quantities of radioactive material that are less than or equal to the Type A quantity, as defined in subparagraph 1200–2–4–.04(1)(iii) and Rule 1200–2–10–.37, Schedule RHS 10–6; and

(c) Monitor all packages known to contain radioactive material for radioactive contamination and radiation levels if there is evidence of degradation of package integrity, such as packages that are crushed, wet or damaged.

(3) The licensee shall monitor as soon as practical after receipt of the package. A package received at the licensee's facility during the licensee's normal working hours or showing evidence of package degradation shall be monitored within three (3) hours. A package not received during the licensee's normal working hours and not showing evidence of package degradation shall be monitored no later than three (3) hours after the beginning of the next working day.

(4) The licensee shall immediately notify the final delivery carrier and the Division by telephone, telegram, mailgram or facsimile when either removable radioactive surface contamination or external radiation levels exceed the following:

(a) Removable radioactive surface contamination limits:

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[5] Labeled means labeled with a Radioactive White I, Yellow II or Yellow III label as specified in U.S. Department of Transportation (DOT) regulations in 49 CFR §§172.403 and 172.436–440, as published October 1, 1993.

1. The level of removable (non–fixed) radioactive contamination on the external surfaces of each package offered for transport shall be kept ALARA. The level of removable radioactive contamination may be determined by wiping an area of 300 square centimeters of the surface concerned with an absorbent material, using moderate pressure, and measuring the activity on the wiping material. Sufficient measurements shall be taken in the most appropriate locations to yield a representative assessment of the removable contamination levels. Except as provided in part 1200–2–5–.115(4)(a)2, the amount of radioactivity measured on any single wiping material, when averaged over the surface wiped, shall not exceed the limits set forth in Table RHS 5–3 at any time during transport. Other methods of assessment of equal or greater efficiency may be used. When other methods are used, the detection efficiency of the method used shall be taken into account and in no case shall the removable contamination on the external surfaces of the package exceed ten (10) times the limits set forth in Table RHS 5–3.

Table RHS 5–3 REMOVABLE EXTERNAL RADIOACTIVE CONTAMINATION WIPE LIMITS

Contaminant	Maximum Permissible Limits		
	Bq/cm^2	$\mu Ci/cm^2$	dpm/cm^2
Beta and gamma emitters and low toxicity alpha emitters; all radionuclides with half–lives less than 10 days; natural uranium; natural thorium; uranium–235; uranium–238; thorium–232; thorium–228; and thorium–230 when contained in ores or physical concentrates	0.37	1 (E–5)	22
All other alpha emitting radionuclides	0.037	1 (E–6)	2.2

2. For packages transported as exclusive use shipments by rail or highway only, the removable contamination at any time during transport shall not exceed ten (10) times the levels prescribed in Table RHS 5–1. The levels at the beginning of transport shall not exceed the levels prescribed in Table RHS 5–1.

(b) External radiation limits:

1. The external radiation levels around the package and around the vehicle, if applicable, shall not exceed 200 millirems (2 millisieverts) per hour at any point on the external surface of the package at any time during transportation. The transport index shall not exceed 10.

2. A package that exceeds the radiation level limits specified in part 1200–2–5–.115(4)(b)1 shall be transported as exclusive use by rail, highway, or water, and the radiation levels external to the package shall not exceed the following during transportation:

(i) 200 millirems (2 millisieverts) per hour on the accessible external surface of the package, unless the following conditions are met, in which case the limit is 1,000 millirems (10 millisieverts) per hour:

(I) The shipment is made in a closed transport vehicle;

(II) The package is secured within the vehicle so that its position remains fixed during transportation; and

(III) There are no loading or unloading operations between the beginning and end of the transportation;

(ii) Two hundred (200) millirems (2 millisieverts) per hour at any point on the outer surface of the vehicle, including the top and underside of the vehicle, or in the case of a flat–bed style vehicle, at any point on the vertical planes projected from the outer edges of the vehicle, on the upper surface of the load, or enclosure, if used, and on the lower external surface of the vehicle; and

(iii) Ten (10) millirems (0.1 millisievert) per hour at any point 2 meters (6.6 feet) from the outer lateral surfaces of the vehicle (excluding the top and underside of the vehicle); or in the case of a flat–bed style vehicle, at any point 2 meters from the vertical planes projected from the outer edges of the vehicle (excluding the top and underside of the vehicle); and

(iv) Two (2) millirems (0.02 millisievert) per hour in any normally–occupied space of the vehicle, except that this provision does not apply to private motor carriers if persons occupying these spaces wear radiation monitoring devices in accordance with Rule 1200–2–5–.71.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Rule 1200–2–5–.126 Compliance with Environmental and Health Protection Regulations is amended by substituting the word "standards" for the words "Basic Standards", so that as amended the rule shall read:

Nothing in these standards relieves the licensee from complying with other federal, state and local regulations governing toxic or hazardous properties of waste materials.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Paragraph (1) of Rule 1200–2–5–.130 General Records Provisions is amended by substituting the word "standards" for the words "Basic Standards", so that as amended the rule shall read:

Each licensee and registrant shall use the units: curie, rad, rem, including multiples and subdivisions, and shall clearly indicate the units of all quantities on records required by these standards.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Part (1)(c)2. of Rule 1200–2–5–.143 Reports of Exposures, Radiation Levels, and Concentrations of Radioactive Material Exceeding the Limits is amended by substituting the word "standards" for the words "Basic Standards", so that as amended the part shall read:

An unrestricted area in excess of 10 times any limit set forth in these standards, the license or registration; whether or not there is exposure of any individual in excess of the limits in 1200–2–5–.60).

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Rule 1200–2–5–.150 Applications for Exemption Limits is amended by substituting the word "standards" for the words "Basic Standards", so that as amended the rule shall read:

> The Division may, upon application by a licensee or registrant or upon its own initiative, grant a specific written exemption from these standards if the Division determines the exemption is authorized by law and would not result in undue hazard to life or property.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Rule 1200–2–5–.152 Reserved is amended by deleting the rule in its entirety and substituting the following to supersede Rule 1200–2–5–.27 Vacating Premises, so that as amended Rule 1200–2–5–.152 shall read:

1200–2–5–.152 Vacating Premises.

> Each specific licensee shall, no less than 30 days before vacating or relinquishing possession or control of premises, notify the Division in writing of intent to vacate. If the premises have been contaminated with radioactive material as a result of his activities, the Department may require that the licensee decontaminate or have decontaminated the location to a level for use as an unrestricted area, the details to be specified in each case by the Division.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Rule 1200–2–5–.160 Violations is amended by substituting the word "standards" for the words "Basic Standards", so that as amended the rule shall read:

> A violation of any of these standards subjects the violator to possible civil and criminal penalties.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Repeals

Rules 1200–2–5–.01 through 1200–2–5–.29 are repealed.

The rulemaking hearing rules set out herein were properly filed in the Department of State on the 17th day of November, 2005, and will become effective on the 31st day of January, 2006.

Rulemaking Hearing Rules
Department of Environment and Conservation
Division of Radiological Health

New Rules

Chapters 1200–2–5 and 1200-2-12 are amended by adding a new rule 1200–2–5–.94 Application for Higher Protection Factors to supersede subparagraph (2)(b) of Rule 1200–2–5–.92 Use of Individual Respiratory Protection Equipment, and a new rule 1200-2-12-.27 Energy Compensation Source, and a new rule 1200-2-12-.28 Tritium neutron Generator Target Source. The new rules shall read:

Chapter 1200–2–5
Standards for Protection Against Radiation

Table of Contents

1200–2–5–.94 Application for Use of Higher Assigned Protection Factors.

(1) The licensee shall obtain authorization from the Division before using assigned respiratory protection factors in excess of those specified in Schedule RHS 8–32. The Division may authorize a licensee to use higher protection factors on receipt of an application that:

(a) Describes the situation for which a need exists for higher protection factors; and

(b) Demonstrates that the respiratory protection equipment provides these higher protection factors under the proposed conditions of use.

(2) Reserved.

Authority**:** T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Amendments

Chapter 1200–2–5
Standards for Protection Against Radiation

Paragraphs (31) through (39) of Rule 1200–2–5–.32 Definitions are re–numbered; paragraphs (16), (34), (37) and (72) are amended. Paragraph (16) is amended by adding the words " The declaration remains in effect until the declared pregnant woman withdraws the declaration in writing or is no longer pregnant." at the end. Paragraphs (34) and (72) are amended by adding the words, " from radiation sources external to the body" after the word "levels". Paragraph (37) is amended by replacing the word "thermoluminescent" with the word "thermoluminescence". Paragraphs (81) through (101) are added. As amended 1200–2–5–.32(16), (31) through (39), (72), and (81) through (101) shall read:

(16) 'Declared pregnant woman' means a woman who has voluntarily informed her employer, in writing, of her pregnancy and the estimated date of conception. The declaration remains in effect until the declared pregnant woman withdraws the declaration in writing or is no longer pregnant.

(31) 'Generally applicable environmental radiation standards' means standards issued by the Environmental Protection Agency (EPA) under the authority of the Atomic Energy Act of 1954, as amended, that impose limits on radiation exposures or levels, or concentrations or quantities of radioactive material, in the general environment outside the boundaries of locations under the control of persons possessing or using sources of radiation.

(32) ‘Government agency’ means any executive department, commission, independent establishment, corporation wholly or partly owned by the United States of America, which is an instrumentality of the United States, or any board, bureau, division, service, office, officer, authority, administration, or other establishment in the executive branch of the Government.

(33) ‘Gray’ (See 1200–2–5–.33(1)(a)).

(34) ‘High radiation area’ means an area, accessible to individuals, in which radiation levels from radiation sources external to the body could result in an individual receiving a dose equivalent in excess of 0.1 rem (1 mSv) in 1 hour at 30 centimeters from the source of radiation or from any surface that the radiation penetrates.

(35) ‘Individual’ means any human being.

(36) ‘Individual monitoring’ means:

(a) The assessment of dose equivalent by the use of devices designed to be worn by an individual;

(b) The assessment of committed effective dose equivalent by bioassay (see Bioassay) or by determination of the time–weighted air concentrations to which an individual has been exposed, i.e., DAC–hours; or

(c) The assessment of dose equivalent by the use of survey data.

(37) ‘Individual monitoring devices’ (‘individual monitoring equipment’) means devices designed to be worn by a single individual for the assessment of dose equivalent, such as film badges, thermoluminescence dosimeters (TLDs), pocket ionization chambers, and personal (“lapel”) air sampling devices.

(38) ‘Internal dose’ means that portion of the dose equivalent received from radioactive material taken into the body.

(39) ‘Lens dose equivalent’ applies to the external exposure of the lens of the eye and is taken as the dose equivalent at a tissue depth of 0.3 centimeter (300 mg/cm^2).

(72) ‘Very high radiation area’ means an area accessible to individuals in which radiation levels from radiation sources external to the body could result in an individual receiving an absorbed dose in excess of 500 rads (5 grays) in 1 hour at 1 meter from a source of radiation or 1 meter from any surface that the radiation penetrates.

(Note: At very high doses received at high dose rates, units of absorbed dose (e.g., rads and grays) are appropriate, rather than units of dose equivalent (e.g., rems and sieverts)).

(81) ‘Air-purifying respirator’ means a respirator with an air-purifying filter, cartridge or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

(82) ‘Assigned protection factor (APF)’ means the expected workplace level of respiratory protection that would be provided by a properly functioning respirator or a class of respirators to properly fitted and trained users. Operationally, the inhaled concentration can be estimated by dividing the ambient airborne concentration by the APF.

(83) ‘Atmosphere-supplying respirator’ means a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

(84) ‘Demand respirator’ means an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

(85) ‘Disposable respirator’ means a respirator for which maintenance is not intended and that is designed to be discarded after excessive breathing resistance, sorbent exhaustion, physical damage, or end-of-service-life renders it unsuitable for use. Examples of this type of respirator are a disposable half-mask respirator or a disposable escape-only self-contained breathing apparatus (SCBA).

(86) ‘Filtering facepiece’ (‘dust mask’) means a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium, not equipped with elastomeric sealing surfaces and adjustable straps.

(87) ‘Fit factor’ means a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

(88) ‘Fit test’ means the use of a protocol to evaluate qualitatively or quantitatively the fit of a respirator on an individual.

(89) ‘Helmet’ means a rigid respiratory inlet covering that also provides head protection against impact and penetration.

(90) ‘Hood’ means a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

(91) ‘Loose-fitting facepiece’ means a respiratory inlet covering that is designed to form a partial seal with the face.

(92) ‘Negative pressure respirator’ (‘tight fitting’) means a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

(93) ‘Positive pressure respirator’ means a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

(94) ‘Powered air-purifying respirator (PAPR)’ means an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

(95) ‘Pressure demand respirator’ means a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

(96) ‘Qualitative fit test (QLFT)’ means a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.

(97) ‘Quantitative fit test (QNFT)’ means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

(98) ‘Self-contained breathing apparatus (SCBA)’ means an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

(99) ‘Supplied-air respirator (SAR)’ or ‘airline respirator’ means an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

(100) ‘Tight-fitting facepiece’ means a respiratory inlet covering that forms a complete seal with the face.

(101) ‘User seal check’ (‘fit check’) means an action conducted by the respirator user to determine if the respirator is properly seated to the face. Examples include negative pressure check, positive pressure check, irritant smoke check or isoamyl acetate check.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Subparagraph (1)(b) of Rule 1200–2–5–.54 Planned Special Exposures is amended by replacing the word "higher" with the words "dose estimated to result from the planned special", so that as amended the subparagraph shall read:

The licensee or registrant authorizes a planned special exposure only in an exceptional situation when alternatives that might avoid the dose estimated to result from the planned special exposure are unavailable or impractical.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Paragraphs (1), (3) and (4), subparagraph (3)(b) and the title of Rule 1200–2–5–.56 Dose to an Embryo/Fetus are amended by changing the word "dose" to "dose equivalent", so that as amended the paragraphs, subparagraphs and rule title shall read:

1200–2–5–.56 Dose Equivalent to an Embryo/Fetus.

(1) The licensee or registrant shall ensure that the dose equivalent to an embryo/fetus during the entire pregnancy, due to occupational exposure of a declared pregnant woman, does not exceed 0.5 rem (5 mSv). (For record keeping requirements, see 1200–2–5–.135).

(3) The dose equivalent to an embryo/fetus shall be taken as the sum of:

(b) The dose equivalent to the embryo/fetus from radionuclides in the embryo/fetus and radionuclides in the declared pregnant woman.

(4) If when a woman declares her pregnancy to the licensee or registrant the dose equivalent to the embryo/fetus is found to be 0.45 rem (4.5 mSv) or greater, the embryo/fetus is permitted an additional dose equivalent not exceeding 0.05 rem (0.5 mSv) during the remainder of the pregnancy.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Parts (1)(b)1. and 3. of Rule 1200–2–5–.70 General Survey and Monitoring Requirements are amended by adding the words "magnitude and " before the word "extent" in part 1. and deleting the words " that could be present" from 3., so that as amended the parts shall read:

(1) (b) Are reasonable under the circumstances to evaluate:

1. The magnitude and extent of radiation levels;

3. The potential radiological hazards.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Part (1)(a)3. of Rule 1200–2–5–.71 Conditions Requiring Individual Monitoring of External and Internal Occupational Dose is re–numbered, a new part (1)(a)3. and subparagraph (2)(c) are added, part (1)(a)2. and

subparagraphs (1)(a) and (2)(b) are deleted and replaced with the following, so that as amended 1200–2–5–.71(1)(a), (1)(a)2., (1)(a)3., (1)(a)4. and (2)(a) through (c) shall read:

(1) (a) Each licensee and registrant shall monitor occupational exposure to radiation from licensed or unlicensed and registered or unregistered radiation sources under the control of the licensee and registrant and shall supply and require the use of individual monitoring devices by:

2. Minors likely to receive, in one (1) year from radiation sources external to the body, a deep dose equivalent in excess of 0.1 rem (1 mSv), a lens dose equivalent in excess of 0.15 rem (1.5 mSv), or a shallow dose equivalent to the skin or to the extremities in excess of 0.5 rem (5 mSv);

3. Declared pregnant women likely to receive during the entire pregnancy, from radiation sources external to the body, a deep dose equivalent in excess of 0.1 rem (1 mSv) [2]; and

4. Individuals entering a high or very high radiation area.

(2) (a) Adults likely to receive, in one (1) year, an intake in excess of ten percent (10%) of the applicable ALI(s) in Table 1, Columns 1 and 2, of Schedule RHS 8–30;

(b) Minors likely to receive, in one (1) year, a committed effective dose equivalent in excess of 0.1 rem (1 mSv); and.

(c) Declared pregnant women likely to receive, during the entire pregnancy, a committed effective dose equivalent in excess of 0.1 rem (1 mSv).

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Rule 1200–2–5–.90 Use of Process or Other Engineering Controls is amended by adding the text ", decontamination" after the word "containment", so that as amended the rule shall read:

The licensee shall use, to the extent practicable, process or other engineering controls (e.g., containment, decontamination or ventilation) to control the concentrations of radioactive material in air.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Rule 1200–2–5–.91 Use of Other Controls is amended by adding paragraph (2), which shall read:

(2) If the licensee performs an ALARA analysis to determine whether respirators should be used, the licensee may consider safety factors other than radiological factors. The licensee should also consider the impact of respirator use on workers' industrial health and safety.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Paragraphs (1) and (2) of Rule 1200–2–5–.92 Use of Individual Respiratory Protection Equipment are amended by deleting the paragraphs and substituting the following, so that as amended the paragraphs shall read:

[2] All of the occupational doses in 1200–2–5–.50 continue to be applicable to the declared pregnant woman as long as the embryo/fetus dose equivalent limit is not exceeded.

(1) If the licensee assigns or permits the use of respiratory protection equipment to limit intakes pursuant to 1200–2–5–.91:

(a) The licensee shall use only respiratory protection equipment that is tested and certified or had certification extended by the National Institute for Occupational Safety and Health/Mine Safety and Health Administration (NIOSH/MSHA), except as otherwise noted in this chapter.

(b) A licensee desiring to use equipment that has not been tested or certified by NIOSH, or for which there is no schedule for testing or certification, shall apply for authorization except as provided in this chapter. The application shall demonstrate by licensee testing or on the basis of reliable test information, that the equipment's material and performance characteristics provide protection equivalent to that of the equipment in paragraph (1)(a) of this rule under anticipated conditions of use.

(c) The licensee shall implement and maintain a respiratory protection program that includes:

1. Air sampling sufficient to identify the potential hazard, permit proper equipment selection and estimate doses;

2. Surveys and bioassays, as appropriate, to evaluate actual intakes;

3. Testing of respirators for operability (user seal check for face sealing devices and functional check for other) immediately before each use;

4. Written procedures regarding:

(i) The routine, non–routine and emergency use of respirators,

(ii) Respirator selection,

(iii) Fit testing,

(iv) Limitations on periods of respirator use and relief from respirator use,

(v) Storage, issuance, maintenance, repair, testing and quality assurance of respiratory protection equipment, including testing for operability immediately before each use;

(vi) Supervision and training of respirator users;

(vii) Monitoring, including air sampling and bioassays;

(viii) Breathing air quality;

(ix) Inventory and control;

(x) Record keeping; and

(xi) The use of process or other engineering controls, instead of respirators;

5. Determination by a physician that the individual user is medically fit to use the respiratory protection equipment before:

(i) The initial fitting of a face-sealing respirator;

(ii) The first field use of non–face–sealing respirators; and

(iii) Either every 12 months thereafter or periodically at a frequency determined by a physician;

6. Fit testing, with fit factor ≥ 10 times the APF for negative pressure devices, and a fit factor ≥ 500 for any positive pressure, continuous flow, and pressure-demand devices, before the first field use of tight fitting, face-sealing respirators and periodically thereafter at a frequency not to exceed 1 year. Fit testing must be performed with the facepiece operating in the negative pressure mode.

(d) The licensee shall advise each respirator user that the user may leave the area at any time for relief from respirator use in the event of equipment malfunction, physical or psychological distress, procedural or communication failure, significant deterioration of operating conditions or any other conditions that might require such relief.

(e) The licensee's use of the equipment shall not exceed the equipment's specifications. The licensee shall provide proper visual, communication and other special capabilities (such as adequate skin protection) when needed.

(f) The licensee shall also consider limitations appropriate to the type and mode of use. When selecting respiratory devices the licensee shall provide for vision correction, adequate communication, low temperature work environments and the concurrent use of other safety or radiological protection equipment. The licensee shall use equipment in such a way as not to interfere with the proper operation of the respirator.

(g) Standby rescue persons are required whenever one-piece atmosphere-supplying suits, or any combination of supplied air respiratory protection device and personnel protective equipment are used from which an unaided individual would have difficulty extricating himself or herself. The standby persons shall be equipped with respiratory protection devices or other apparatus appropriate for the potential hazards. The standby rescue persons shall observe or otherwise maintain continuous communication with the workers (visual, voice, signal line, telephone, radio, or other suitable means), and be immediately available to assist them in case of a failure of the air supply or for any other reason that requires relief from distress. A sufficient number of standby rescue persons shall be immediately available to assist all users of this type of equipment and to provide effective emergency rescue if needed.

(h) Atmosphere-supplying respirators shall be supplied with respirable air of grade D quality or better as defined by the Compressed Gas Association in publication G-7.1, ``Commodity Specification for Air," 1997 and included in the regulations of the Occupational Safety and Health Administration (29 CFR 1910.134(i)(1)(ii)(A) through (E). Grade D quality air criteria include:

1. Oxygen content (v/v) of 19.5-23.5%;

2. Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less;

3. Carbon monoxide (CO) content of 10 ppm or less;

4. Carbon dioxide content of 1,000 ppm or less; and

5. Lack of noticeable odor.

(i) The licensee shall ensure that no objects, materials or substances, such as facial hair, or any conditions that interfere with the face--facepiece seal or valve function, and that are under the control of the respirator wearer, are present between the skin of the wearer's face and the sealing surface of a tight-fitting respirator facepiece.

(j) In estimating the dose to individuals from intake of airborne radioactive materials, the concentration of radioactive material in the air that is inhaled when respirators are worn is initially assumed to be the ambient concentration in air without respiratory protection, divided by the assigned protection factor. If the dose is later found to be greater than the estimated dose, the corrected value shall be used. If the dose is later found to be less than the estimated dose, the corrected value may be used.

(2) In estimating an individual's exposure to airborne radioactive materials, the licensee may make allowance for respiratory protection equipment used to limit intakes pursuant to 1200–2–5–.91. To make such an allowance the following conditions, in addition to those in 1200–2–5–.92(1) shall be satisfied:

(a) The licensee selects respiratory protection equipment that provides a protection factor (see Schedule RHS 8–32) greater than the multiple by which peak concentrations of airborne radioactive materials in the working area are expected to exceed the values specified in Schedule RHS 8–30, Table 1, Column 3. If the selection of a respiratory protection device with a protection factor greater than the peak concentrations is inconsistent with the goal specified in 1200–2–5–.91 of keeping the total effective dose equivalent ALARA, the licensee may select respiratory protection equipment with a lower protection factor only if such a selection would result in keeping the total effective dose equivalent ALARA. The concentration of radioactive material inhaled when respirators are used may be initially estimated by dividing the average concentration in air, during each period of uninterrupted respirator use, by the protection factor. If the exposure is later found to exceed the estimate, the corrected value shall be used; if the exposure is later found to be less than the estimate, the corrected value may be used.

(b) The licensee shall obtain authorization from the Division before assigning respiratory protection factors in excess of those specified in Schedule RHS 8–32. The Division may authorize a licensee to use higher protection factors on receipt of an application that:

1. Describes the situation for which a need exists for higher protection factors; and

2. Demonstrates that the respiratory protection equipment provides these higher protection factors under the proposed conditions of use.

(c) The licensee shall use as emergency devices only respiratory protection equipment that has been specifically certified or had certification extended for emergency use by NIOSH/MSHA.

(d) The licensee shall notify, in writing, the Division at least 30 days before the date that respiratory protection equipment is first used under the provisions of either 1200–2–5–.92(1) or (2).

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Subparagraph (1)(a) of Rule 1200–2–5–.93 Further Restrictions on the Use of Respiratory Protection Equipment is amended by deleting the subparagraph and substituting the following, so that as amended the subparagraph shall read:

(1) (a) Ensure that the respiratory protection program of the licensee is adequate to limit doses of individuals from intakes of airborne radioactive materials consistent with maintaining total effective dose equivalent ALARA; and

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Paragraphs (2) and (3) of Rule 1200–2–5–.130 General Records Provisions are re–numbered and a new paragraph (2) is added, so that as amended 1200–2–5–.130(2) through (4) shall read:

(2) In the records required by this part, the licensee may record quantities in SI units in parentheses following each of the units specified in paragraph (1). However, all quantities must be recorded as stated in paragraph (1).

(3) Notwithstanding the requirements above in paragraph (1), when recording information on shipment manifests, as required in paragraph 1200–2–5–.125(2), information shall be recorded in the International System of Units (SI) or in SI and units as specified in paragraph (1).

(4) The licensee or registrant shall make a clear distinction among the quantities entered on the records required by this chapter (e.g., total effective dose equivalent, shallow–dose equivalent, lens dose equivalent, deep–dose equivalent, committed effective dose equivalent).

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Paragraph (2) of Rule 1200–2–5–.135 Records of Individual Monitoring Results is amended by deleting the paragraph in its entirety and substituting the following, so that as amended the paragraph shall read:

(2) These records shall include [7], when applicable:

(a) The deep–dose equivalent to the whole body, lens–dose equivalent, shallow–dose equivalent to the skin and shallow–dose equivalent to the extremities;

(b) The estimated intake of radionuclides (see 1200–2–5–.51);

(c) The committed effective dose equivalent assigned to the intake of radionuclides;

(d) The specific information used to assess the committed effective dose equivalent pursuant to 1200–2–5–.53(3) and when required by 1200–2–5–.71;

(e) The total effective dose equivalent when required by 1200–2–5–.51; and

(f) The total of the deep–dose equivalent and the committed dose to the organ receiving the highest total dose.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Schedule RHS 8–32 of Rule 1200–2–5–.161 is amended by deleting the schedule and substituting the following, so that as amended the schedule shall read:

SCHEDULE RHS 8–32

ASSIGNED PROTECTION FACTORS FOR RESPIRATORS [a]

	Operating Mode [c]	Assigned Protection Factors
I. Air–Purifying Respirators [Particulate [b] only] [c]:		

[7] Assessments of dose equivalent and records made using units in effect before the licensee's or registrant's adoption of 1200–2–5–.30 through 1200–2–5–.160 need not be changed.

Filtering facepiece disposable[d]	Negative Pressure	([d])
Facepiece, half[e]	Negative Pressure	10
Facepiece, full	Negative Pressure	100
Facepiece, half	Powered air–purifying respirators	50
Facepiece, full	Powered air–purifying respirators	1000
Helmet/hood	Powered air–purifying respirators	1000
Facepiece, loose–fitting	Powered air–purifying respirators	25
II. Atmosphere–Supplying Respirators [Particulate, gases and vapors[f]]:		
1. Air–line respirator:		
Facepiece, half	Demand	10
Facepiece, half	Continuous Flow	50
Facepiece, half	Pressure Demand	50
Facepiece, full	Demand	100
Facepiece, full	Continuous Flow	1000
Facepiece, full	Pressure Demand	1000
Helmet/hood	Continuous Flow	1000
Facepiece, loose–fitting	Continuous Flow	25
Suit	Continuous Flow	([g])
2. Self–contained breathing apparatus (SCBA):		
Facepiece, full	Demand	[h] 100
Facepiece, full	Pressure Demand	[i] 10,000
Facepiece, full	Demand, Recirculating	[h] 100
Facepiece, full	Positive Pressure Recirculating	[i] 10,000
III. Combination Respirators		
Any combination of air–purifying and atmosphere–supplying respirators	Assigned protection factor for type and mode of operation as listed above	

a These assigned protection factors apply only in a respiratory protection program that meets the requirements of this chapter. They are applicable only to airborne radiological hazards and may not be appropriate to circumstances when chemical or other respiratory hazards exist instead of, or in addition to, radioactive hazards. Selection and use of respirators for such circumstances must also comply with U. S. Department of Labor regulations. Radioactive contaminants for which the concentration values in Table 1, Column 3 of schedule RHS 8–32 in Rule 1200–2–5–.161 are based on internal dose due to inhalation may, in addition, present external exposure hazards at higher concentrations. Under these circumstances, limitations on occupancy may have to be governed by external dose limits.

b Air purifying respirators with APF <100 shall be equipped with particulate filters that are at least 95 percent (95%) efficient. Air purifying respirators with APF = 100 shall be equipped with particulate filters that are at least 99 percent (99%) efficient. Air purifying respirators with APFs >100 shall be equipped with particulate filters that are at least 99.97 percent (99.97%) efficient.

c The licensee may apply to the Division for the use of an APF greater than 1 for sorbent cartridges as protection against airborne radioactive gases and vapors (e.g., radioiodine).

d Licensees may permit individuals to use this type of respirator who have not been medically screened or fit tested on the device provided that no credit be taken for their use in estimating intake or dose. It is also recognized that it is difficult to perform an effective positive or negative pressure pre-use user seal check on this type of device. All other respiratory protection program requirements listed in Rule 1200–2–5–.92 apply. An assigned protection factor has not been assigned for these devices.

However, an APF equal to 10 may be used if the licensee can demonstrate a fit factor of at least 100 by use of a validated or evaluated, qualitative or quantitative fit test.

e Under-chin type only. No distinction is made in this Schedule between elastomeric half-masks with replaceable cartridges and those designed with the filter medium as an integral part of the facepiece (e.g., disposable or reusable disposable). Both types are acceptable so long as the seal area of the latter contains some substantial type of seal-enhancing material such as rubber or plastic, the two or more suspension straps are adjustable, the filter medium is at least 95 percent (95%) efficient and all other requirements of this chapter are met.

f The assigned protection factors for gases and vapors are not applicable to radioactive contaminants that present an absorption or submersion hazard. For tritium oxide vapor, approximately one-third of the intake occurs by absorption through the skin so that an overall protection factor of 3 is appropriate when atmosphere-supplying respirators are used to protect against tritium oxide. Exposure to radioactive noble gases is not considered a significant respiratory hazard, and protective actions for these contaminants should be based on external (submersion) dose considerations.

g No NIOSH approval schedule is currently available for atmosphere supplying suits. This equipment may be used in an acceptable respiratory protection program as long as all the other minimum program requirements, with the exception of fit testing, are met (i.e., Rule 1200–2–5–.92).

h The licensee should implement institutional controls to assure that these devices are not used in areas immediately dangerous to life or health (IDLH).

i This type of respirator may be used as an emergency device in unknown concentrations for protection against inhalation hazards. External radiation hazards and other limitations to permitted exposure such as skin absorption shall be taken into account in these circumstances. This device may not be used by any individual who experiences perceptible outward leakage of breathing gas while wearing the device.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

The rulemaking hearing rules set out herein were properly filed in the Department of State on the 17th day of November, 2005, and will become effective on the 31st day of January, 2006.

Rulemaking Hearing Rules
Department of Environment and Conservation
Division of Radiological Health

Amendments

Chapter 1200–2–6
Use of X–Ray Apparatus

Paragraph (2) of Rule 1200–2–6–.04 General Safety Precautions is amended by deleting "1200–2–5–.03, 1200–2–5–.06(1), or 1200–2–5–.07" and substituting "1200–2–5–.50, 1200–2–5–.55, 1200–2–5–.56 or 1200–2–5–.60", so that as amended the paragraph shall read:

> Unless otherwise specified, each installation shall be provided with such primary barriers and/or secondary barriers as are necessary to assure compliance with 1200–2–5–.50, 1200–2–5–.55, 1200–2–5–.56 or 1200–2–5–.60, whichever applies.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201et seq.

The first sentence of subparagraph (1)(f) of Rule 1200–2–6–.07 Analytical X–Ray Installations is amended by deleting "1200–2–5–.12" and substituting "1200–2–5–.111", so that as amended the sentence shall read:

> In addition to any signs and labels required in 1200–2–5–.111, a sign or label shall be placed on or adjacent to each x–ray tube housing and shall be located so as to be clearly visible to any individual who may be working in close proximity to the primary beam path.

Subparagraph (2)(h) of Rule 1200–2–6–.07 Analytical X–Ray Installations is amended by deleting "1200–2–5–.03, 1200–2–5–.06, 1200–2–5–.07, 1200–2–5–.10, 1200–2–5–.11, and 1200–2–5–.22" and substituting "1200–2–5–.50, 1200–2–5–.55, 1200–2–5–.56, 1200–2–5–.60, 1200–2–5–.70, 1200–2–5–.71(1), 1200–2–5–.130, 1200–2–5–.132, and 1200–2–5–.135", so that as amended the subparagraph shall read:

> Surveys and personnel monitoring shall be provided to ensure compliance with the requirements of Chapter 1200–2–5 (See 1200–2–5–.50, 1200–2–5–.55, 1200–2–5–.56, 1200–2–5–.60, 1200–2–5–.70, 1200–2–5–.71(1), 1200–2–5–.130, 1200–2–5–.132, and 1200–2–5–.135).

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

The last sentence of subparagraph (2)(a) of Rule 1200–2–6–.08 X–Ray Gauges is amended by deleting "1200–2–5–.22" and substituting "1200–2–5–.130 and 1200–2–5–.135", so that as amended the sentence shall read:

> Records of exposure shall be kept as required in 1200–2–5–.130 and 1200–2–5–.135.

The last sentence of subparagraph (2)(d) of Rule 1200–2–6–.08 X–Ray Gauges is amended by deleting "1200–2–5–.22(2)" and substituting "1200–2–5–.130 and 1200–2–5–.132(1)", so that as amended the sentence shall read:

> Records of such surveys shall be kept as required by 1200–2–5–.130 and 1200–2–5–.132(1).

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

The rulemaking hearing rules set out herein were properly filed in the Department of State on the 17th day of November, 2005, and will become effective on the 31st day of January, 2006.

Rulemaking Hearing Rules
Department of Environment and Conservation
Division of Radiological Health

Amendments

Chapter 1200–2–7
Use of Sealed Radioactive Sources in the Healing Arts

Subparagraph (1)(c) of Rule 1200–2–7–.03 Interstitial, Intracavitary, and Superficial Applications is amended by deleting "1200–2–5–.03, 1200–2–5–.06(1), and 1200–2–5–.07" and substituting "1200–2–5–.50, 1200–2–5–.55, 1200–2–5–.56 and 1200–2–5–.60", so that as amended the subparagraph shall read:

> When not in use, sealed sources and applicators containing sealed sources shall be kept in a protective enclosure of such material and wall thickness as may be necessary to ensure that provisions of 1200–2–5–.50, 1200–2–5–.55, 1200–2–5–.56 and 1200–2–5–.60 are met.

The last sentence of subparagraph (2)(d) of Rule 1200–2–7–.03 Interstitial, Intracavitary, and Superficial Applications is amended by deleting the sentence and substituting the following, so that as amended the sentence shall read:

> A report shall be filed with the Division at the address in Rule 1200–2–4–.07 within five (5) days of the test; the report shall describe the equipment involved, the test results and the corrective action taken.

Subparagraph (4)(a) of Rule 1200–2–7–.03 Interstitial, Intracavitary, and Superficial Applications is amended by deleting "1200–2–5–.12" and "1200–2–5–.13(2)" and substituting "1200–2–5–.111" and "1200–2–5–.111(7)", so that as amended the subparagraph shall read:

> In addition to the requirements of 1200–2–5–.111, the bed, cubicle or room of the brachytherapy patient shall be posted with a sign indicating the presence of brachytherapy sealed sources. This sign shall incorporate the radiation symbol, and specify the radionuclide, the date, the activity and the individual to contact for radiation safety instructions. The sign is not required provided the exception in 1200–2–5–.111(7) is met.

Part (4)(b)3. of Rule 1200–2–7–.03 Interstitial, Intracavitary, and Superficial Applications is amended by deleting "1200–2–5–.03" and substituting "1200–2–5–.50" so that as amended the part shall read:

> The precautionary instructions necessary to assure that the exposure of individuals does not exceed that permitted under 1200–2–5–.50.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

The rulemaking hearing rules set out herein were properly filed in the Department of State on the 17th day of November, 2005, and will become effective on the 31st day of January, 2006.

Rulemaking Hearing Rules
Department of Environment and Conservation
Division of Radiological Health

Amendments

Chapter 1200–2–7
Use of Sealed Radioactive Sources in the Healing Arts

Paragraphs (8) and (9) of Rule 1200–2–7–.04 Teletherapy are re–numbered and new paragraphs (8) and (9) are added; so that as amended, 1200–2–7–.04(8), (9), (10) and (11) shall read:

(8) Radiation surveys for teletherapy facilities.

(a) Before medical use and after each installation of a teletherapy source, the licensee shall perform radiation surveys with a portable radiation measurement survey instrument calibrated in accordance with paragraph (5) to verify that:

1. The maximum and average dose rates at one meter from the teletherapy source with the source in the off position and the collimators set for a normal treatment field do not exceed 10 millirem per hour and 2 millirem per hour, respectively; and

2. With the teletherapy source in the on position with the largest clinically available treatment field and with a scattering phantom in the primary beam of radiation, that:

(i) Radiation dose rates in restricted areas are not likely to cause any occupationally exposed individual to receive a dose in excess of the limits specified in Rule 1200–2–5–.50; and

(ii) Radiation dose rates in controlled or unrestricted areas are not likely to cause any individual member of the public to receive a dose in excess of the limits specified in Rule 1200–2–5–.60.

(b) If the results of the surveys required in subparagraph (a) of this paragraph indicate any radiation dose quantity per unit time in excess of the respective limit specified in that subparagraph, the licensee shall lock the control in the off position and not use the unit:

1. Except as may be necessary to repair, replace, or test the teletherapy unit shielding or the treatment room shielding; or

2. Until the licensee has received a specific exemption pursuant to Rule 1200–2–5–.60

(c) A licensee shall retain a record of the radiation measurements made following installation of a source for the duration of the license. The record must include the date of the measurements, the reason the survey is required, the manufacturer's name, model number and serial number of the teletherapy unit, the source, and the instrument used to measure radiation levels, each dose rate measured around the teletherapy source while in the off position and the average of all measurements, a plan of the areas surrounding the treatment room that were surveyed, the measured dose rate at several points in each area expressed in millirem per hour, the calculated maximum quantity of radiation over a period of one week for each restricted and unrestricted area, and the signature of the Radiation Safety Officer.

(9) Modification of teletherapy unit or room before beginning a treatment program.

(a) If the survey required by paragraph (8) indicates that any individual member of the public is likely to receive a dose in excess of the limits specified in 1200–2–5–.60, the licensee shall, before beginning the treatment program:

1. Either equip the unit with stops or add additional radiation shielding to ensure compliance with 1200–2–5–.60.

2. Perform the survey required by paragraph (8) again; and

3. Maintain records of the results of the initial survey, a description of the modification made to comply with part (a)1., and the results of the second survey, in accordance with paragraph (11).

(b) As an alternative to the requirements set out in subparagraph (a) of this paragraph, a licensee may request a license amendment under 1200—5–.60(2) that authorizes radiation levels in unrestricted areas greater than those permitted by 1200–2–5–.60(1). A licensee may not begin the treatment program until the license amendment has been issued.

(10) Monitor and survey instruments.

(a) Each licensee authorized to use teletherapy units for treating humans shall install a permanent radiation monitor in each teletherapy room for continuous monitoring of beam status.

(b) Each radiation monitor must be capable of providing visible notice of a teletherapy unit malfunction that may result in an exposed or partially exposed source. The visible indicator of high radiation levels must be located to be observable by a person entering the treatment room

(c) Each radiation monitor must be equipped with an emergency power supply separate from the power supply to the teletherapy unit. This emergency power supply may be a battery system.

(d) Each radiation monitor must be tested for proper operation each day before the teletherapy unit is used for treatment of patients.

(e) If a radiation monitor is inoperable for any reason, any person entering the teletherapy room shall use a properly operating portable survey instrument or audible alarm personal dosimeter to monitor for any malfunction of the source exposure mechanism that may have resulted in an exposed or partially exposed source. Survey instruments or dosimeters must be tested daily before use.

(11) Records. The licensee shall maintain, for inspection by the Division, records of the measurements, tests, corrective actions, inspection and servicing of the teletherapy unit, surveys, instrument calibrations and records of licensee's evaluation of the qualified expert's training and experience made under 1200–2–7–.04(4), (5), (7), (8) or (9), as applicable.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

The rulemaking hearing rules set out herein were properly filed in the Department of State on the 17th day of November, 2005, and will become effective on the 31st day of January, 2006.

Rulemaking Hearing Rules
Department of Environment and Conservation
Division of Radiological Health

Amendments

Chapter 1200–2–8
Radiation Safety Requirements for Industrial Radiography Operations

Subpart (1)(a)2.(ii) of Rule 1200–2–8–.05 Personal Radiation Safety Requirements for Radiographers and Radiographers Assistants is amended by deleting "9" and substituting "8", so that as amended the subpart shall read:

The applicable rules of Chapters 1200–2–5 and 1200–2–8;

Authority: T.C.A. §§ 4–5–201 et seq. and 68–202–201 et seq.

Rule 1200–2–8–.07 Minimum Subjects to be Covered in Training Radiographers is amended by deleting subparagraph (1)(b) and paragraphs (8) and (9).

Authority: T.C.A. §§ 4–5–201 et seq. and 68–202–201 et seq.

Subparagraphs (3)(a) and (b) of Rule 1200–2–8–.10 Required Administrative Procedures for Industrial Radiography Program is amended by deleting the words "three (3)" and substituting the words "six (6)", so that as amended the subparagraph shall read:

(a) Include observation of the performance of each radiographer and radiographer's assistant during an actual radiographic operation at intervals not to exceed six (6) months;

(b) Provide that if a radiographer or a radiographer's assistant has not participated in a radiographic operation for more than six (6) months since the last inspection, that individual's performance shall be observed and recorded the next time the individual participates in a radiographic operation; and

Authority: T.C.A. §§ 4–5–201 et seq. and 68–202–201 et seq.

Part (1)(a)2. of Rule 1200–2–8–.10 Required Administrative Procedures for Industrial Radiography Program is amended by deleting the words "1200–2–8–.07(1) and (2)" and "1200–2–8–.07(3), (4) and (5)" and substituting the words "1200–2–8–.07(7)(a) and (b)" and "1200–2–8–.07(7)(c), (d) and (e)", so that as amended the part shall read:

Resumes of prior training and experience of individuals that show fulfillment of the requirements of 1200–2–8–.07(7)(a) and (b) and the initial training of such individuals in the licensee's or registrant's specific radiography program as outlined in 1200–2–8–.07(7)(c), (d) and (e);

Authority: T.C.A. §§ 4–5–201 et seq. and 68–202–201 et seq.

The first sentence of paragraph (1) of Rule 1200–2–8–.12 Reporting Requirements is amended by deleting the sentence and substituting the following, so that as amended the first sentence of 1200–2–8–.12(1) shall

read:

> In addition to the reporting requirements specified in other chapters of these regulations, each licensee or registrant shall provide a written report to the Division at the address in Rule 1200–2–4–.07, within 30 days of the occurrence of any of the following incidents involving radiographic equipment:

Authority: T.C.A. §§ 4–5–201 et seq. and 68–202–201 et seq.

The rulemaking hearing rules set out herein were properly filed in the Department of State on the 17th day of November, 2005, and will become effective on the 31st day of January, 2006.

Rulemaking Hearing Rules
Department of Environment and Conservation
Division of Radiological Health

Amendments

Chapter 1200–2–8
Radiation Safety Requirements for Industrial Radiography

Paragraph (5) of Rule 1200–2–8–.05 Personal Radiation Safety Requirements for Radiographers and Radiographer's Assistants is amended by adding subparagraph (a), which shall read:

(a) The minimum qualifications, training and experience for RSOs for industrial radiography are as follows:

1. Completion of the training and testing requirements of 1200–2–8–.07(1);

2. 2000 hours of hands-on experience as a qualified radiographer in industrial radiographic operations; and

3. Formal training in the establishment and maintenance of a radiation protection program.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Subparagraph (1)(b) of Rule 1200–2–8-.15 Record keeping Requirements is amended by adding Part 14. and by deleting Part 7. and substituting the following, so that as amended the parts shall read:

7. Records of dosimetry reports received from the accredited NVLAP personnel dosimeter processor as required by paragraph 1200–2–8–.05(3). The licensee shall maintain each record until the Division terminates the license.

14. Records of estimates of exposures because of off–scale personal direct reading dosimeters or of lost or damaged personnel dosimeters until the Division terminates the license.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

The rulemaking hearing rules set out herein were properly filed in the Department of State on the 17th day of November, 2005, and will become effective on the 31st day of January, 2006.

Rulemaking Hearing Rules
Department of Environment and Conservation
Division of Radiological Health

Amendments

Chapter 1200–2–9
Requirements for Accelerators

Paragraph (2) of Rule 1200–2–9–.17 General Safety Provisions is amended by deleting "1200–2–5–.11" and substituting "1200–2–5–.70 and 1200–2–5–.71", so that as amended the paragraph shall read:

> Each registrant shall provide personnel monitoring devices that shall be calibrated for the radiations and energies of radiation produced by the accelerator and shall be used as required by 1200–2–5–.70 and 1200–2–5–.71 of these regulations.

Paragraph (3) of Rule 1200–2–9–.17 General Safety Provisions is amended by deleting "1200–2–5–.03, 1200–2–5–.06, and 1200–2–5–.07" and substituting "1200–2–5–.50, 1200–2–5–.55, 1200–2–5–.56 and 1200–2–5–.60", so that as amended the paragraph shall read:

> Each installation shall be provided with such primary barriers and/or secondary barriers as are necessary to assure compliance with 1200–2–5–.50, 1200–2–5–.55, 1200–2–5–.56 and 1200–2–5–.60 of these regulations.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Paragraph (2) of Rule 1200–2–9–.20 Tests and Surveys is amended by deleting "1200–2–5–.10" and substituting "1200–2–5–.70", so that as amended the paragraph shall read:

> In conjunction with initial operation and after changes have been made in shielding, operating parameters, equipment or occupancy of adjacent areas, make a survey as required in 1200–2–5–.70;

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Subparagraph (2)(g) of Rule 1200–2–9–.21 Therapeutic Accelerator Installations is amended by deleting "1200–2–4–.04(xx)" and substituting "paragraph 1200–2–4–.04(1)(pp)", so that as amended the 1200–2–9–.21(2)(g) shall read:

> Full calibration measurements required by (d) of this paragraph shall be performed by a qualified expert as defined in 1200–2–4–.04(1)(pp).

The first sentence of subparagraph (2)(j) of Rule 1200–2–9–.21 Therapeutic Accelerator Installations is amended by deleting "1200–2–4–.04(xx)" and substituting "paragraph 1200–2–4–.04(1)(pp)", so that as amended the first sentence of 1200–2–9–.21(2)(j) shall read:

> Spot–check measurements required by (h) of this paragraph shall be performed in accordance with procedures established by a qualified expert as defined in 1200–2–4–.04(1)(pp).

Authority: T.C.A. §§4-5-201 et seq. and 68–202–201 et seq.

The rulemaking hearing rules set out herein were properly filed in the Department of State on the 17th day of November, 2005, and will become effective on the 31st day of January, 2006.

Rulemaking Hearing Rules
Department of Environment and Conservation
Division of Radiological Health

Amendments

Chapter 1200–2–10
Licensing and Registration

Part (2)(b)9. of Rule 1200–2–10–.10 General Licenses [4] – Radioactive Material Other than Source Material is amended by deleting "1200–2–5–.23 and 1200–2–5–.24" and substituting "1200–2–5–.140 and 1200–2–5–.141", so that as amended the part shall read:

> Shall comply with the provisions of 1200–2–5–.140 and 1200–2–5–.141 for reporting radiation incidents, theft or loss of radioactive material.

Subparagraph (3)(b) of Rule 1200–2–10–.10 General Licenses [4] – Radioactive Material Other than Source Material is amended by deleting "1200–2–5–.23 and 1200–2–5–.24" and substituting "1200–2–5–.140 and 1200–2–5–.141", so that as amended the subparagraph shall read:

> Persons who own, receive, acquire, possess, or use luminous safety devices pursuant to the general license in (a) of this paragraph (3) are exempt from the requirements of Chapter 1200–2–5, except that they shall comply with the provisions of 1200–2–5–.140 and 1200–2–5–.141.

Part (6)(b)3. of Rule 1200–2–10–.10 General Licenses [4] – Radioactive Material Other than Source Material is amended by deleting "1200–2–5–.17(1) and 1200–2–5–.23 and 1200–2–5–.24" and substituting "1200–2–5–.120(1), 1200–2–5–.140, and 1200–2–5–.141", so that as amended the part shall read:

> Are exempt from the requirements of Chapter 1200–2–5 of these regulations except that such persons shall comply with the provisions of 1200–2–5–.120(1), 1200–2–5–.140, and 1200–2–5–.141.

Part (7)(c)5. of Rule 1200–2–10–.10 General Licenses [4] – Radioactive Material Other than Source Material is amended by deleting "1200–2–5–.17 " and substituting "1200–2–5–.120", so that as amended the part shall read:

> The general licensee shall dispose of the Mock Iodine 125 reference or calibration sources described in (a) of this paragraph (7) as required by 1200–2–5–.120.

Subparagraph (7)(e) of Rule 1200–2–10–.10 General Licenses [4] Radioactive Material other than Source Material is amended by deleting the subparagraph and substituting the following, so that as amended 1200–2–10–.10(7)(e) shall read:

> Licensees possessing or using radioactive materials under this general license shall report in writing to the Director, Division of Radiological Health, at the address in Rule 1200–2–4–.07, any changes in information furnished in the application submitted under subparagraph 1200–2–10–.10(7)(b). The report shall be furnished within 30 days after the effective date of such change.

Subparagraph (7)(f) of Rule 1200–2–10–.10 General Licenses[4] – Radioactive Material Other than Source Material is amended by deleting "1200–2–5–.17, 1200–2–5–.23, and 1200–2–5–.24" and substituting "1200–2–5–.120, 1200–2–5–.140, and 1200–2–5–.141", so that as amended the subparagraph shall read:

> Any person using radioactive material pursuant to this general license is exempt from the

requirements of Chapter 1200–2–5 with respect to radioactive materials covered by this general license, except such persons using the Mock Iodine 125 described in part (a)8 shall comply with the provisions of 1200–2–5–.120, 1200–2–5–.140, and 1200–2–5–.141.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Part (5)(a)2. of Rule 1200–2–10–.13 Special Requirements for Issuance of Specific Licenses is amended by deleting "1200–2–5–.03(1)" and substituting "1200–2–5–.50", so that as amended the part shall read:

Under ordinary conditions of handling, storage and use of the device, the radioactive material contained in the device will not be released or inadvertently removed from the device, and no person will receive in any period of one calendar quarter a dose in excess of ten percent (10%) of the limits specified in 1200–2–5–.50; and

The last sentence of subparagraph (5)(d) of Rule 1200–2–10–.13 Special Requirements for Issuance of Specific Licenses is amended by deleting "1200–2–5–.03(1)" and substituting "1200–2–5–.50", so that as amended the sentence shall read:

The submitted information shall demonstrate that performance of such activity or activities by an individual untrained in radiological protection, in addition to other handling, storage, and use of devices under the general license, will not cause that individual to receive a calendar quarter dose in excess of ten percent (10%) of the limits specified in 1200–2–5–.50;

Part (5)(f)1. of Rule 1200–2–10–.13 Special Requirements for Issuance of Specific Licenses is amended by deleting the part and substituting the following, so that as amended 1200–2–10–.13(5)(f)1 shall read:

Report to the Division, at its office located at the address in Rule 1200–2–4–.07, all transfers of such devices to persons for use under the general license in paragraph 1200–2–10–.10(2).

Subpart (6)(a)1.(ii) of Rule 1200–2–10–.13 Special Requirements for Issuance of Specific Licenses is amended by deleting the words "1200–2–8–.07(1) and (2)" and "1200–2–8–.07(3), (4) and (5)" and substituting the words "1200–2–8–.07(7)(a) and (b)" and "1200–2–8–.07(7)(c), (d) and (e)", so that as amended the subpart shall read:

Resumes of prior training and experience of individuals that show fulfillment of the requirements of 1200–2–8–.07(7)(a) and (b) and the program for the initial training of such individuals in the licensee's or registrant's specific industrial radiography program as outlined in 1200–2–8–.07(7)(c), (d) and (e);

The last sentence of subparagraph (13)(d) of Rule 1200–2–10–.13 Special Requirements for Issuance of Specific Licenses is amended by deleting "1200–2–5–.17" and substituting "1200–2–5–.120", so that as amended the sentence shall read:

In the case of the Mock Iodine–125 reference or calibration source, the information accompanying the source must also contain directions to the licensee regarding the waste disposal requirements set out in 1200–2–5–.120.

Parts (17)(a)1., (b)1. and (c)1. of Rule 1200–2–10–.13 Special Requirements for Issuance of Specific Licenses is amended by deleting the words ", by July 1, 1993,", so that as amended the parts shall read:

(17) (a) 1. In addition to the requirements set forth in 1200–2–10–.12, all specific licenses issued, or for which an initial application or an application to amend is submitted, to possess radioactive materials in unsealed form, on foils or plated sources, or sealed in glass in excess of the quantities in Table RHS 7–2 must contain either:

(b) 1. In addition to the requirements set forth in 1200–2–10–.12, all specific licenses to possess uranium hexafluoride in excess of 50 kilograms in a single container or 1000 kilograms total must contain either:

(c) 1. In addition to the requirements set forth in 1200–2–2–.12, all specific licenses to possess plutonium in excess of 2 curies in unsealed form or on foils or plated sources must contain either:

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

The last sentence of subpart (2)(c)2.(iii) of Rule 1200–2–10–.14 Specific Licenses for Certain Groups of Medical Uses of Radioactive Material is amended by deleting the sentence and substituting the following, so that as amended the sentence shall read:

A report shall be filed with the Division, at the address in Rule 1200–2–4–.07, within five (5) days of the test; the report shall describe the equipment involved, the test results and the corrective action taken;

Authority: T.C.A. §§4-5-201 et seq. and 68–202–201 et seq.

Subparagraph (7)(a) of Rule 1200–2–10–.16 Specific Terms and Conditions of Licenses is amended by deleting the subparagraph and substituting the following, so that as amended 1200–2–10–.16(7)(a) shall read:

Provide the Division written notification, at the address in Rule 1200–2–4–.07, immediately following the filing of a voluntary or involuntary petition for bankruptcy under any Chapter of Title 11 (Bankruptcy) of the United States Code (U.S.C.):

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Paragraph (1) of Rule 1200–2–10–.24 is amended by adding the words "and every person who assembles, installs, or services radiation machines" after the words "in 1200–2–10–.27(4)" and the words ", Form RHS 8–4a " before the words "or Form RHS 8–4b" in the fourth sentence and deleting the last two sentences. As amended the paragraph shall read:

The owner or person having possession of any radiation machine or accelerator, except those specifically exempted in 1200–2–10–.07, shall register such sources within ten (10) days after acquisition of such machine. The owner or possessor of any accelerator shall substitute an application for certified registration required in Chapter 1200–2–9. The application for certified registration must be received by the Department within ten (10) days after acquisition of the accelerator; however, an accelerator may not be energized until registered pursuant to Chapter 1200–2–9. In addition, every person who provides inspections as provided for in 1200–2–10–.27(4) and every person who assembles, installs, or services radiation machines shall register with the Division of Radiological Health, Tennessee Department of Environment and Conservation. Registration under this rule shall be on Department Form RHS 8–4, Form RHS 8–4a or Form RHS 8–4b, as appropriate, as furnished by the Department and may be obtained from the Division of Radiological Health, L&C Annex, 3rd Floor, 401 Church Street, Nashville, Tennessee 37243–1532. A registration fee in accordance with the Classification and Fee Schedule in 1200–2–10–.24(3) shall be due upon receipt of an invoice from the Division of Radiological Health following the submittal of the completed registration form. The check for the fee shall be made payable to “Treasurer, State of Tennessee.”

Authority: T.C.A. §4–5–201 et seq. and 68–202–201 et seq.

Part (1)(a)3. of Rule 1200–2–10–.27 Inspections is amended by deleting "1200–2–5–.14(2)" and substituting "1200–2–4–.12", so that as amended the part shall read:

> The provisions of 1200–2–10–.27(1)(a)1. shall not be interpreted as authorization to disregard instructions pursuant to 1200–2–4–.12.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

The second sentence of subparagraph (4)(a) of Rule 1200–2–10–.32 Licensing of Shippers of Radioactive Material into or within Tennessee is amended by deleting the sentence and substituting the following, so that as amended the sentence shall read:

> An application for a license for delivery shall be submitted on Division Form RHS–30 together with any necessary fee to the Division at the address in Rule 1200–2–4–.07.

Part (4)(b)2. of Rule 1200–2–10–.32 Licensing of Shippers of Radioactive Material into or Within Tennessee is amended by deleting "1200–2–5–.32(4)(b)" and substituting "1200–2–10–.32(4)(b)", so that as amended the part shall read:

> Any insurance carried pursuant to Section 2210 of Title 42 of the United States Code and U.S. NRC Regulations (10 CFR Part 140) of November 30, 1988, as amended shall be sufficient to meet the requirements of 1200–2–10–.32(4)(b).

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

The rulemaking hearing rules set out herein were properly filed in the Department of State on the 17th day of November, 2005, and will become effective on the 31st day of January, 2006.

Rulemaking Hearing Rules
Department of Environment and Conservation
Division of Radiological Health

Amendments

Chapter 1200–2–10
Licensing and Registration

Rule 1200–2–10–.04 Exemptions: Radioactive Materials other than Source Material is amended by adding paragraph (4), which shall read:

(4) Capsules containing carbon–14 urea for 'in vivo' diagnostic use for humans.

(a) Except as provided in subparagraphs (4)(b) and (c) below, any person is exempt from these regulations to the extent that such person receives, possesses, uses, transfers, owns or acquires capsules containing 1 microcurie (37 kilobecquerels) carbon–14 urea (allowing for nominal variation that may occur during the manufacturing process) each, for 'in vivo' diagnostic use for humans.

(b) Any person who desires to use the capsules for research involving human subjects shall apply for and receive a specific license under Chapter 1200–2–10.

(c) Any person who desires to manufacture, prepare, process, produce, package, repackage, or transfer for commercial distribution such capsules shall apply for and receive a specific license pursuant to 10 CFR 32.21.

(d) Nothing in this section relieves persons from complying with applicable FDA, other Federal and State requirements governing receipt, administration and use of drugs.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Rule 1200–2–10–.10 General Licenses – Radioactive Material other than Source Material is amended by deleting paragraph (8).

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

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Rulemaking Hearing Rules
Department of Environment and Conservation
Division of Radiological Health

Amendments

Chapter 1200–2–11
Licensing Requirements for Land Disposal of Radioactive Waste

Rule 1200–2–11–.05 Communications is amended by deleting the rule and substituting the following, so that as amended the rule shall read:

> Except where otherwise specified, all communications and reports concerning the regulations in this chapter and applications filed under them should be addressed to the Division at the address in Rule 1200–2–4–.07.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Subparagraph (3)(f) of Rule 1200–2–11–.17 Technical Requirements for Land Disposal Facilities is amended by deleting "1200–2–5–.07" and substituting "1200–2–5–.60", so that as amended the subparagraph shall read:

> Waste must be placed and covered in a manner that limits the radiation dose rate at the surface of the cover to levels that at a minimum will permit the licensee to comply with all provisions of 1200–2–5–.60 at the time the license is transferred pursuant to 1200–2–11–.14.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

The rulemaking hearing rules set out herein were properly filed in the Department of State on the 17th day of November, 2005, and will become effective on the 31st day of January, 2006.

Rulemaking Hearing Rules
Department of Environment and Conservation
Division of Radiological Health

Amendments

Chapter 1200–2–12
Radiation Safety Requirements for Well Logging

Rule 1200–2–12–.04 Registration or Application for a License is amended by deleting the rule and substituting the following, so that as amended the rule shall read:

> A person, as defined in Chapter 1200–2–5, shall file an application for a license authorizing the use of radioactive material in well logging or register radiation producing machines for use in well logging with the Division at the address in Rule 1200–2–4–.07.

Authority: T.C.A. §§4-5-201 et seq. and 68–202–101 et seq.

Subpart (1)(e)3.(ii) of Rule 1200–2–12–.06 Agreement with Well Owner or Operator is amended by deleting "1200–2–5–.12(1)(a)" and substituting "1200–2–5–.110(1)", so that as amended the subpart shall read:

> The radiation symbol (the color requirement in 1200–2–5–.110(1) need not be met);

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

The last sentence of subparagraph (1)(a) of Rule 1200–2–12–.07 Labels, Security, and Transportation Precautions is amended by deleting "1200–2–5–.12(1)" and substituting "1200–2–5–.110(1)", so that as amended the sentence shall read:

> The marking or label must contain the radiation symbol specified in 1200–2–5–.110(1) without the conventional color requirements, and the wording "DANGER (or CAUTION) RADIOACTIVE MATERIAL."

The last sentence of subparagraph (1)(b) of Rule 1200–2–12–.07 Labels, Security, and Transportation Precautions is amended by deleting "1200–2–5–.12(1)" and substituting "1200–2–5–.110(1)", so that as amended the sentence shall read:

> The label must contain the radiation symbol specified in 1200–2–5–.110(1) and the wording "CAUTION (or DANGER), RADIOACTIVE MATERIAL, NOTIFY CIVIL AUTHORITIES (or NAME OF COMPANY)."

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

The first sentence of subparagraph (4)(b) of Rule 1200–2–12–.09 Leak Testing of Sealed Sources is amended by deleting the sentence and substituting the following, so that as amended the sentence shall read:

> Licensees shall submit written reports to the Division, at the address in Rule 1200–2–4–.07, within

five (5) days of receiving the test results.

Authority: T.C.A. §§4-5-201 et seq. and 68–202–201 et seq.

Rule 1200–2–12–.15 Radioactive Markers is amended by deleting the words " Schedule RHS 8–2, Chapter 1200–2–5" and substituting the words " Schedule RHS 8–31, Rule 1200–2–5–.161", so that as amended the rule shall read:

> The licensee may use radioactive markers in wells only if the individual markers contain quantities of radioactive material not exceeding the quantities specified in Schedule RHS 8–31, Rule 1200–2–5–.161.

Authority: T.C.A. §§4-5-201 et seq. and 68–202–201 et seq.

Subparagraph (1)(h) of Rule 1200–2–12–.19 Operating and Emergency Procedures is amended by deleting "1200–2–5–.16" and substituting "1200–2–5–.115", so that as amended the subparagraph shall read:

> Picking up, receiving, and opening packages containing radioactive materials, in accordance with 1200–2–5–.115;

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Paragraph (2) of Rule 1200–2–12–.26 Notification of Incidents and Lost Sources; Abandonment Procedures for Irretrievable Sources is amended by deleting "1200–2–5–.23, 1200–2–5–.24 and 1200–2–5–.26." and substituting "1200–2–5–.140, 1200–2–5–.141 and 1200–2–5–.143.", so that as amended the paragraph shall read:

> The licensee or registrant shall notify the Division of Radiological Health of the theft or loss of radioactive materials, radiation overexposures, excessive levels and concentrations of radiation, and certain other accidents as required by 1200–2–5–.140, 1200–2–5–.141 and 1200–2–5–.143.

The first sentence of paragraph (4) of Rule 1200–2–12–.26 Notification of Incidents and Lost Sources; Abandonment Procedures for Irretrievable Sources is amended by deleting the sentence and substituting the following, so that as amended the sentence shall read:

> Within 30 days after a sealed source has been classified as irretrievable, the licensee shall make a written report to the Division at the address in Rule 1200–2–4–.07.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

The rulemaking hearing rules set out herein were properly filed in the Department of State on the 17th day of November, 2005, and will become effective on the 31st day of January, 2006.

Rulemaking Hearing Rules
Department of Environment and Conservation
Division of Radiological Health

New Rules

Chapters 1200–2–5 and 1200-2-12 are amended by adding a new rule 1200–2–5–.94 Application for Higher Protection Factors to supersede subparagraph (2)(b) of Rule 1200–2–5–.92 Use of Individual Respiratory Protection Equipment, and a new rule 1200-2-12-.27 Energy Compensation Source, and a new rule 1200-2-12-.28 Tritium neutron Generator Target Source. The new rules shall read:

Chapter 1200–2–12
Radiation Safety Requirements for Well Logging

Table of Contents

1200–2–12–.27 Energy Compensation Source.

(1) The licensee may use an energy compensation source (ECS) that is contained within a logging tool, or other tool components, only if the ECS contains quantities of licensed material not exceeding 100 microcuries (3.7 MBq).

(a) For well logging with a surface casing for protecting fresh water aquifers, use of the ECS is only subject to the requirements of Rules 1200–2–12–.09, .10 and .11.

(b) For well logging without a surface casing for protecting fresh water aquifers, use of the ECS is only subject to the requirements of Rules 1200–2–12–.06, .09, .10, .11, .17 and .26.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

1200–2–12–.28 Tritium Neutron Generator Target Source.

(1) Use of a tritium neutron generator target source, containing quantities not exceeding 30 curies (1,110 MBq) and in a well with a surface casing to protect fresh water aquifers, is subject to the requirements of this chapter except Rules1200–2–12–.06, .12, and .26.

(2) Use of a tritium neutron generator target source, containing quantities exceeding 30 curies (1,110 MBq) or in a well without a surface casing to protect fresh water aquifers, is subject to the requirements of this chapter except Rule 1200–2–12–.12.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Amendments

Chapter 1200–2–12
Radiation Safety Requirements for Well Logging

Rule 1200–2–12–.03 Definitions is amended by adding paragraphs (20) and (21), which shall read:

(20) 'Energy compensation source (ECS)' means a small sealed source, with an activity not exceeding 3.7 MBq (100 microcuries), used within a logging tool, or other tool components, to provide a reference standard to maintain the tool's calibration when in use.

(21) 'Tritium neutron generator target source' means a tritium source used within a neutron generator tube to produce neutrons for use in well logging applications.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Part (1)(e)2. of Rule 1200–2–12–.06 Agreement with Well Owner or Operator is amended by deleting the part and substituting the following, so that as amended the part shall read:

(1) (e) 2. A means to prevent inadvertent intrusion on the source, unless the source is not accessible to any subsequent drilling operations; and,

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Paragraphs (1) and (2) of Rule 1200–2–12–.08 Radiation Detection Instruments are amended by deleting the paragraphs and substituting the following, so that as amended the paragraphs shall read:

(1) The licensee or registrant shall keep a calibrated and operable radiation survey instrument capable of detecting, as appropriate, beta, gamma and x–ray radiation at each field station and temporary job–site to make the radiation surveys required by this chapter and by Chapter 1200–2–5. To satisfy this requirement, the radiation survey instrument must be capable of measuring 0.001 mSv (0.1 mrem) per hour through at least 0.5 mSv (50 mrem) per hour.

(2) The licensee shall have available additional calibrated and operable radiation detection instruments sensitive enough to detect the low radiation and contamination levels that could be encountered if a sealed source ruptured. The licensee may own the instruments or may have a procedure to obtain them quickly from a second party.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Paragraphs (1), (2) and (3) and subparagraph (4)(a) of Rule 1200–2–12–.09 Leak Testing of Sealed Sources are amended by deleting the paragraphs and subparagraph and substituting the following, so that as amended the paragraphs and subparagraph shall read:

(1) Testing and record keeping requirements. Each licensee who uses a sealed source shall have the source tested for leakage periodically. The licensee shall keep a record of leak test results in units of microcuries and retain the record for inspection by the Division for three (3) years after the leak test is performed.

(2) Method of testing. The wipe of a sealed source shall be performed using a leak test kit or method approved by the Division, U.S. Nuclear Regulatory Commission, a Licensing State or an Agreement State. The wipe sample shall be taken from the nearest accessible point to the sealed source where contamination might accumulate. The wipe sample shall be analyzed for radioactive contamination. The analysis shall be capable of detecting the presence of 0.005 microcurie (185 Bq) of radioactive material on the test sample and shall be performed by a person approved by the Division, U.S. Nuclear Regulatory Commission, a Licensing State or an Agreement State to perform the analysis.

(3) Test frequency.

(a) Each sealed source (except an energy compensation source [ECS]) shall be tested at intervals not to exceed six (6) months. In the absence of a certificate from a transferor that a test has been made within the six (6) months before the transfer, the sealed source shall not be used until tested.

(b) Each ECS that is not exempt from testing in accordance with paragraph (e) of this section shall be tested at intervals not to exceed three (3) years. In the absence of a certificate from a transferor that a test has been made within the three (3) years before the transfer, the ECS may not be used until tested.

(4) Removal of leaking source from service:

(a) If the test conducted pursuant to (1) and (2) of this rule reveals the presence of 0.005 microcurie (185 Bq) or more of removable radioactive material, the licensee shall remove the sealed source from service immediately and have it decontaminated, repaired, or disposed of by an Agreement State, U.S. Nuclear Regulatory Commission, or a Licensing State licensee that is authorized to perform these functions. The licensee shall check the equipment associated with the leaking source for radioactive contamination and, if contaminated, have it decontaminated or disposed of by a Department, U.S. Nuclear Regulatory Commission, an Agreement State or Licensing State licensee that is authorized to perform these functions.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Rule 1200–2–12–.12 Design and Performance Criteria for Sealed Sources is amended by deleting the rule and substituting the following, so that as amended the rule shall read:

(1) A licensee may use a sealed source in well logging if the sealed source:

(a) Is doubly encapsulated;

(b) Contains licensed material whose chemical and physical forms are as insoluble and nondispersible as practical; and

(c) Meets the requirements in paragraphs (2), (3) and (4) of this rule.

(2) For a sealed source manufactured on or before July 14, 1989, a licensee may use the sealed source, for use in well logging applications if it meets the requirements of USASI N5.10-1968, ``Classification of Sealed Radioactive Sources," or the requirements in paragraph (3) or (4) of this rule.

(3) For a sealed source manufactured after July 14, 1989, a licensee may use the sealed source, for use in well logging applications if it meets the oil-well logging requirements of ANSI/HPS N43.6-1997, ``Sealed Radioactive Sources--Classification."

(4) For a sealed source manufactured after July 14, 1989, a licensee may use the sealed source, for use in well logging applications, if:

(a) The sealed source's prototype has been tested and found to maintain its integrity after each of the following tests:

1. Temperature. The test source must be held at – 40º C for 20 minutes, 600º C for 1 hour, and then be subject to a thermal shock test with a temperature drop from 600º C to 20º C within 15 seconds.

2. Impact test. A 5 kg steel hammer, 2.5 cm in diameter, must be dropped from a height of 1 m onto the test source.

3. Vibration. The test source must be subject to a vibration from 25 Hz to 500 Hz at 5 g amplitude for 30 minutes.

4. Puncture test. A 1 gram hammer and pin, 0.3 cm pin diameter must be dropped from a height of 1 m onto the test source.

5. Pressure test. The test source must be subjected to an external pressure of 24,600 pounds per square inch absolute (1.695×10^7 pascals).

(5) The requirements in paragraphs (1), (2), (3) and (4) of this rule do not apply to sealed sources that contain licensed material in gaseous form.

(6) The requirements in paragraph (1), (2), (3) and (4) of this rule do not apply to energy compensation sources (ECS). ECSs shall be registered with the Nuclear Regulatory Commission under 10 CFR 32.210 or with an Agreement State.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Paragraphs (1) and (3) of Rule 1200–2–12–.20 Personnel Monitoring are amended by deleting the paragraphs and substituting the following, so that as amended the paragraphs shall read:

(1) The licensee or registrant shall not permit an individual to act as a logging supervisor or logging assistant unless that person wears, at all times during the handling of sources of radiation, a personnel dosimeter that is processed and evaluated by an accredited National Voluntary Accreditation Program (NVLAP) processor. Each personnel dosimeter shall be assigned to and worn by only one individual. Film badges shall be replaced at least monthly and other personnel dosimeters replaced at least quarterly. After replacement, each personnel dosimeter shall be promptly processed.

(3) The licensee or registrant shall retain records of personnel dosimeters and bioassay results for inspection until the Division authorizes disposition of the records.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

Subparagraph (3)(a) of Rule 1200–2–12–.26 Notification of Incidents and Lost Sources; Abandonment Procedures for Irretrievable Sources is amended by deleting the paragraph and substituting the following, so that as amended the subparagraph shall read:

(3) (a) Notify the Division of Radiological Health by telephone of the circumstances that resulted in the inability to retrieve the source and:

1. Obtain Division approval to implement abandonment procedures; or

2. That the licensee implemented abandonment before receiving Division approval because the licensee believed there was an immediate threat to public health and safety; and

Subparagraphs (4)(i) and (j) of Rule 1200–2–12–.26 Notification of Incidents and Lost Sources; Abandonment Procedures for Irretrievable Sources are re–numbered and a new subparagraph (i) is added, so that as amended the subparagraphs shall read:

(4) (i) The immediate threat to public health and safety justification for implementing abandonment if prior Division approval was not obtained in accordance with part (3)(a)2. of this rule;

(j) Any other information, such as a warning statement, contained on the permanent identification plaque; and

(k) State and Federal agencies receiving a copy of this report.

Authority: T.C.A. §§4–5–201 et seq. and 68–202–201 et seq.

The rulemaking hearing rules set out herein were properly filed in the Department of State on the 17th day of November, 2005, and will become effective on the 31st day of January, 2006.