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To: <phl@nrc.gov> *Paul Johnson*
Date: 10/15/01 11:52AM
Subject: Proposed revision of GA Rules and Regs

Paul, attached are the proposed revisions to the GA rules. I am seeking comment by November 12, 2001, if at all possible. I have also attached a copy of the NRC Chronology-Georgia.doc that can be used to cross reference most of the revisions. The rules were prepared using WordPerfect and the Chronology is in Word.

The revisions can also be accessed in PDF format at
http://www.ganet.org/dnr/environ/rules_files/rules.htm#Proposed

Please let me know if you have any questions.

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STP-006 Template

RIDS DIST: SP06

Rule 391-3-17-.01 GENERAL PROVISIONS. AMENDED.

- (1) Scope. Except as otherwise specifically provided, this Chapter, 391-3-17, applies to all persons who receive, possess, use, transfer, own, or acquire any source of radiation; provided, however, that nothing in this Chapter shall apply to any person to the extent such person is subject to regulation by the U.S. Nuclear Regulatory Commission.¹ Nothing in Rule 391-3-17-.03 of this Chapter shall be interpreted as limiting the intentional exposure of patients to radiation for the purpose of diagnosis or therapy.
- (2) Definitions. As used in this Chapter, these terms have the definitions set forth below. Additional definitions used only in a certain Rule will be found in that Rule.
 - (a) "A₁" means the maximum activity of special form radioactive material permitted in a Type A package. "A₂" means the maximum activity of radioactive material, other than special form, LSA and SCO material, permitted in a Type A package. These values are either listed in the "Table of A₁ and A₂ Values for Radionuclides" of 49 CFR 173.435 or may be derived in accordance with the procedure prescribed in 49 CFR 173.433-173.435.
 - (b) "Absorbed dose" means the energy imparted by ionizing radiation per unit mass of irradiated material. The units of absorbed dose are the rad and the Gray (Gy).
 - (c) "Accelerator-produced material" means any material made radioactive by a particle accelerator.
 - (d) "Act" means Chapter 13 of the Official Code of Georgia, Annotated, entitled "Radiation Control" as amended.
 - (e) "Activity" means the rate of disintegration or transformation or decay of radioactive material. The units of activity are the Curie (Ci) and the Becquerel (Bq).
 - (f) "Adult" means an individual 18 or more years of age.

¹Attention is directed to the fact that regulation by the State of source material, byproduct material, and special nuclear material in quantities not sufficient to form a critical mass is subject to the provisions of the agreement between the State of Georgia and the U.S. Nuclear Regulatory Commission and to 10 CFR Part 150 of the Commission's regulations.

Rule .01(2)(g)

- (g) "Agreement State" means any State with which the U.S. Nuclear Regulatory Commission or the U.S. Atomic Energy Commission has entered into an effective agreement under subsection 274b. of the Atomic Energy Act of 1954, as amended (73 Stat. 689).
- (h) "Airborne radioactive material" means any radioactive material dispersed in the air in the form of dusts, fumes, particulates, mists, vapors, or gases.
- (i) "Airborne radioactivity area" means:
- ~~1. Any room, enclosure or operating area in which airborne radioactive materials, composed wholly or partly of licensed materials, exist in concentrations;~~
 1. In excess of the derived air concentrations (DACs) specified in Appendix B, Table I of 10 CFR 20.1001-20.2401, effective January 1, 1994. or
 2. ~~Any room, enclosure, or operating area in which airborne radioactive materials exist in concentration which averaged over the number of hours in any week during which individuals are in the area, exceed 25 percent of the amount specified in Appendix B, Table I, Column 1 of 10 CFR 20.1001-20.2401. To such a degree that an individual present in the area without respiratory protective equipment could exceed, during the hours an individual is present in a week, an intake of 0.6 percent of the annual limit on intake (ALI) or 12 DAC-hours.~~
- (j) "Annually" means once every 12 calendar months or no later than the last day of the same calendar month of the following year.
- (k) "As low as is reasonably achievable" (ALARA) means making every reasonable effort to maintain exposures to radiation as far below the dose limits in this Chapter as is practical, consistent with the purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in relation to the state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and licensed or registered sources of radiation in the public interest.
- (l) "Background radiation" means radiation from cosmic sources;

Rule.01(2)(l)

naturally occurring radioactive materials, including radon, except as a decay product of source or special nuclear material, and including global fallout as it exists in the environment from the testing of nuclear explosive devices or from past nuclear accidents such as Chernobyl that contribute to background radiation and are not under the control of the licensee. "Background radiation" does not include sources of radiation from radioactive materials regulated by the Department.

- (m) "Becquerel" (Bq) means the SI unit of activity. One Becquerel is equal to \pm one disintegration or transformation per second.
- (n) "Bioassay" means the determination of kinds, quantities or concentrations, and, in some cases, the locations of radioactive material in the human body, whether by direct measurement, in vivo counting, or by analysis and evaluation of materials excreted or removed from the human body. For purposes of this Chapter, "radiobioassay" is an equivalent term.
- (o) "Byproduct material" means:
1. Any radioactive material, except special nuclear material, yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material; and
 2. The tailings or wastes produced by the extraction or concentration of uranium or thorium from ore processed primarily for its source material content, including discrete surface wastes resulting from uranium or thorium solution extraction processes. Underground ore bodies depleted by these solution extraction operations do not constitute "byproduct material" within this definition.
- (p) "Calibration" means the determination of:
1. The response or reading of an instrument relative to a series of known radiation values over the range of the instrument, or
 2. The strength of a source of radiation relative to a standard.
- (q) "CFR" means the Code of Federal Regulations.

- (r) ~~"Chelating agent" means amine polycarboxylic acids, hydroxycarboxylic acids, gluconic acid, and polycarboxylic acids.~~
- Rule.01(2)(r)
- (s)(r) "Collective dose" means the sum of the individual doses received in a given period of time by a specified population from exposure to a specified source of radiation.
- (t)(s) "Committed dose equivalent" ($H_{T,50}$) means the dose equivalent to organs or tissues of reference (T) that will be received from an intake of radioactive material by an individual during the 50-year period following the intake.
- (u)(t) "Committed effective dose equivalent" ($H_{E,50}$) is the sum of the products of the weighting factors applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to each of these organs or tissues ($H_{E,50} = \sum w_T H_{T,50}$).
- (v)(u) "Curie" means a unit of quantity of radioactivity. One Curie (Ci) is that quantity of radioactive material which decays at the rate of 3.7×10^{10} transformations per second (tps).
- (w)(v) "Daily" means once every calendar day worked.
- (x)(w) "Deep dose equivalent" (H_d), which applies to external whole body exposure, means the dose equivalent at a tissue depth of \pm one centimeter (1000 mg/cm^2).
- (y)(x) "Department" means the Department of Natural Resources of the State of Georgia.
- (z)(y) "Depleted uranium" means the source material uranium in which the isotope uranium-235 is less than 0.711 weight percent of the total uranium present. Depleted uranium does not include special nuclear material.
- (aa)(z) "Derived air concentration" (DAC) means the concentration of a given radionuclide in air which, if breathed by the reference man for a working year of 2000 hours under conditions of light work (inhalation rate 1.2 cubic meters of air per hour), results in an intake of one ALI. (Annual Limit on Intake defined in Rule .03 (2) (d)) DAC values are given in Table 1, Column 3 of Appendix B to 10 CFR 20.1001 - 20.2402 2401.

(bb)(aa) "Dose" is a generic term that means absorbed dose, dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, or total effective dose equivalent.

Rule.01(2)(bb)

(cc)(bb) "Dose equivalent" (H_T) means the product of the absorbed dose in tissue, quality factor, and all other necessary modifying factors at the location of interest. The units of dose equivalent are the rem and Sievert (Sv). θ

(dd)(cc) "Dose limits" means the permissible upper bounds of radiation doses established in accordance with this Chapter. For purposes of this Chapter, "limits" is an equivalent term.

(ee)(dd) "Effective dose equivalent" (H_E) means the sum of the products of the dose equivalent to each organ or tissue (H_T) and the weighting factor (w_T) applicable to each of the body organs or tissues that are irradiated ($H_E = \sum w_T H_T$).

(ff)(ee) "Embryo/fetus" means the developing human organism from conception until the time of birth.

(gg)(ff) "Entrance or access point" means any opening through which an individual or extremity of an individual could gain access to radiation areas or to licensed radioactive materials. This includes entry or exit portals of sufficient size to permit human entry, irrespective of their intended use.

(hh)(gg) "Explosive material" means any chemical compound, mixture, or device which produces a substantial instantaneous release of gas and heat spontaneously or by contact with sparks or flame.

(ii)(hh) "~~Exposure" means the quotient of dQ by dm where "dQ" is the absolute value of the total charge of the ions of one sign produced in air when all the electrons (negatrons and positrons) liberated by photons in a volume element of air having mass "dm" are completely stopped in air. The special unit of exposure is the Roentgen (R). being exposed to ionizing radiation or to radioactive material.~~

(jj)(ii) "Exposure rate" means the exposure per unit of time, such as Roentgen per minute or milliroentgen per hour.

- (k)(jj) "External dose" means that portion of the dose equivalent received from any source of radiation outside the body.
- (H)(kk) "Extremity" means hand, elbow, arm below the elbow, foot, knee, and leg below the knee.
- (mm) ~~"Eye dose equivalent" means the external dose equivalent to the lens of the eye at a tissue depth of 0.3 centimeter (300 mg/cm²).~~

Rule .01(2)(II)

- (nn)(ll) "Former U.S. Atomic Energy Commission (AEC) or U.S. Nuclear Regulatory Commission (NRC) licensed facilities" means nuclear reactors, nuclear fuel reprocessing plants, uranium enrichment plants, or critical mass experimental facilities where AEC or NRC licenses have been terminated.
- (oo)(mm) "Generally applicable environmental radiation standards" means standards issued by the U.S. Environmental Protection Agency (EPA) under the authority of the Atomic Energy Act of 1954, as amended, that impose limits on radiation exposures, levels, concentrations or quantities of radioactive material, in the general environment outside the boundaries of locations under the control of persons possessing or using radioactive material.
- (pp)(nn) "Gray" (Gy) means the SI unit of absorbed dose. One Gray is equal to an absorbed dose of 100 Joule/kilogram (100 rad).
- (qq)(oo) "Hazardous waste" means those wastes designated as hazardous by U.S. Environmental Protection Agency regulations in 40 CFR Part 261.
- (rr)(pp) "Healing arts" means medicine, dentistry, chiropractic, podiatry, osteopathy or veterinary medicine.
- (ss)(qq) "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 any source of radiation or from any surface that the radiation penetrates. For purposes of this Chapter, rooms or areas in which diagnostic x-ray systems are used for healing arts purposes are not considered high radiation areas.
- (tt)(rr) "Human use" means the internal or external administration of radiation or radioactive material to human beings.
- (uu)(ss) "Individual" means any human being.
- (vv)(tt) "Individual monitoring" means the assessment of:
1. Dose equivalent by the use of:
 - (i) Individual monitoring devices, or

Rule .01(2)(tt)1.(ii)

(ii) Survey data; or

2. Committed effective dose equivalent:

(i) By bioassay, or

(ii) By determination of the time-weighted air concentrations to which an individual has been exposed, that is, DAC-hours [See the definition of DAC-hours in Rule 391-3-17-.03(2)(q)].

~~(ww)~~(uu) "Individual monitoring devices" means devices designed to be worn by a single individual for the assessment of dose equivalent. For purposes of this Chapter, individual monitoring devices and personnel monitoring equipment are equivalent terms. Examples of individual monitoring devices are film badges, thermoluminescent dosimeters (TLDs), optically stimulated luminescent devices, pocket ionization chambers, and personal air sampling devices.

~~(xx)~~(vv) "Inspection" means an official examination or observation including, but not limited to, tests, surveys, and monitoring to determine compliance with Rules, Regulations, Orders, requirements, and conditions of the Department.

~~(yy)~~(ww) "Interlock" means a device arranged or connected such that the occurrence of an event or condition is required before a second event or condition can occur or continue to occur.

~~(zz)~~(xx) "Internal dose" means that portion of the dose equivalent received from radioactive material taken into the body.

(yy) "Lens dose equivalent" (LDE) means 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/cm²).

~~(aaa)~~(zz) "License" means a license issued by the Department in accordance with the Regulations promulgated by the Board.

~~(bbb)~~(aaa) "Licensed material" means radioactive material received, possessed, used, transferred or disposed of under a general or specific license issued by the Department.

~~(ccc)~~(bbb) "Licensee" means any person who is licensed by the Department in accordance with this Chapter and the Act.

Rule .01(2)(ccc)

- (ddd)(ccc) "Licensing State" means any state with regulations equivalent to the Suggested State Regulations for Control of Radiation relating to, and an effective program for, the regulatory control of NARM and which has been granted final designation by the Conference of Radiation Control Program Directors, Inc.
- (eee)(ddd) "Limits" [See Dose limits].
- (fff)(eee) "Lost or missing licensed material" means licensed material whose location is unknown. This definition includes licensed material that has been shipped but has not reached its planned destination and whose location cannot be readily traced in the transportation system.
- (ggg)(fff) "Major processor" means a user processing, handling, or manufacturing radioactive material exceeding Type A quantities as unsealed sources or material, or exceeding 4 four times Type B quantities as sealed sources, but does not include nuclear medicine programs, universities, industrial radiographers, or small industrial programs. Type A and B quantities are defined in Section 71.4 of 10 CFR Part 71.
- (ggg) "Management" means the chief executive officer or other individual having the authority to manage, direct, or administer the licensee's activities, or those persons' delegate or delegates.
- (hhh) "Member of the public" means any individual except when that individual is receiving an occupational dose.
- (iii) "Minor" means an individual less than 18 years of age.
- (jjj) "Monthly" means once every calendar month, not to exceed an interval of 35 days.
- (kkk) "Monitoring" means the measurement of radiation, radioactive material concentrations, surface area activities or quantities of radioactive material and the use of the results of these measurements to evaluate potential exposures and doses. For purposes of this Chapter, "radiation monitoring" and "radiation protection monitoring" are equivalent terms.
- (III) "NARM" means any naturally-occurring or accelerator-produced radioactive material. It does not include byproduct, source, or special nuclear material.

(mmm) "Natural radioactivity" means radioactivity of naturally-occurring nuclides.

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(nnn) "NORM" (Naturally-Occurring Radioactive Material) means any nuclide which is radioactive in its natural physical state (i.e., not man-made), but does not include byproduct, source, or special nuclear material.

(ooo) "Nuclear Regulatory Commission" (NRC) means the U.S. Nuclear Regulatory Commission or its duly authorized representatives.

(ppp) "Occupational dose" means the dose received by an individual in the course of employment while engaged in activities licensed by the Department in which the individual's assigned duties involve exposure to licensed and unlicensed sources of radiation whether in the possession of the licensee, or other person. Occupational dose does not include doses received from background radiation, as a patient from medical practices, from exposure from individuals administered radioactive material and released in accordance with Rule 391-3-17-.05(7)(k), from voluntary participation in medical research programs, or as a member of the public.

(qqq) "Package" means the assembly of components necessary to ensure compliance with packing requirements of DOT regulations together with its radioactive contents as presented for transport.

1. "Fissile material package" means a fissile material packaging together with its fissile material contents.
2. "Type B package" means a Type B packaging together with its radioactive contents. On approval, a Type B package design is designated by NRC as B(U) unless the package has a maximum normal operating pressure of more than 700 kPa (100 lb/in²) gauge or pressure relief device that will allow the release of radioactive material to the environment under the tests specified in 10 CFR 71 (hypothetical accident conditions), in which case it will receive a designation B(M). B(U) refers to the need for unilateral approval of international shipments; B(M) refers to the need for multilateral approval of international shipments. There is no distinction made in how packages with these designations may be used in domestic transportation. To determine their distinction for international transportation, see DOT regulations in 49 CFR 173. A Type B package approved before September 6, 1983, was designated only

as Type B. Limitations on its use are specified in 10 CFR 71.13.

- (rrr) "Particle accelerator" means any machine capable of accelerating electrons, protons, deuterons, or other charged particles in a vacuum
- Rule .01(2)(rrr)
- and of discharging the resultant particulate or other radiation into a medium at energies usually in excess of 4 one MeV.
- (sss) "Person" means any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, agency, political subdivision of this State, any other state or political subdivision or agency thereof, and any legal successor, representative, agent, or department of the foregoing, but shall not include federal government agencies.
- (ttt) "Personnel monitoring equipment" [See Individual monitoring devices].
- (uuu) "Pharmacist" means any individual who is licensed to practice Pharmacy in this State by the Georgia State Board of Pharmacy.
- (vvv) "Physician" means any person who is licensed to engage in the practice of medicine under the Authority of O.C.G.A. 43-34-20 or the limited practice of medicine under O.C.G.A. 43-35-1.
- (www) "Principal activities", as used in this Chapter, means activities authorized by the license which are essential to achieving the purpose(s) for which the license was issued or amended. Storage during which no license material is accessed for use or disposal and activities incidental to decontamination or decommissioning are not principal activities.
- (xxx) "Public dose" means the dose received by a member of the public from radiation and/or radioactive material released by a licensee or from any other source of radiation under the control of a licensee. It does not include occupational dose, doses received from background radiation, doses received as a patient from medical practices, from exposure from individuals administered radioactive material and released in accordance with Rule 391-3-17-.05(7)(k), or doses from voluntary participation in medical research programs.
- (yyy) "Pyrophoric liquid" means any liquid that ignites spontaneously in dry or moist air at or below 130 °F (54.4 °C). A pyrophoric solid is any solid material, other than one classed as an explosive, which

under normal conditions is liable to cause fires through friction, retained heat from manufacturing or processing, or which can be ignited readily and, when ignited, burns so vigorously and persistently as to create a serious transportation, handling, or disposal hazard. Included are spontaneously combustible and water-reactive materials.

(zzz)
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"Qualified expert" means an individual having the knowledge and

training to measure ionizing radiation, to evaluate safety techniques, and to advise regarding radiation protection needs, for example, individuals certified in the appropriate field by the American Board of Radiology or the American Board of Health Physics, or those having equivalent qualifications. With reference to the calibration of radiation therapy equipment, an individual having, in addition to the above qualifications, training and experience in the clinical applications of radiation physics to radiation therapy, for example, individuals certified in Therapeutic Radiological Physics or X-Ray and Radium Physics by the American Board of Radiology, or those having equivalent qualifications.

- (aaaa) "Quality factor" (Q) means the modifying factor, listed in Tables 1 and 2 of this Rule, that is used to derive dose equivalent from absorbed dose.
- (bbbb) "Quarterly" means once every three calendar months or no later than the last day of the third month after the initial month.
- (cccc) "Rad" means the special unit of absorbed dose. One rad is equal to an absorbed dose of 100 ergs/gram or 0.01 Joule/kilogram (0.01 Gray).
- (dddd) "Radiation" means alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, high-speed protons, and other particles capable of producing ions. For purposes of this Chapter, ionizing radiation is an equivalent term. Radiation, as used in this Chapter, does not include non-ionizing radiation, such as radiowaves, microwaves, visible, infrared, or ultraviolet light.
- (eeee) "Radiation area" means any area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 5 mrem (0.05 mSv) in 1 hour at 30 centimeters from the source of radiation or from any surface that

the radiation penetrates.

(ffff) "Radiation machine" means any device capable of producing radiation except those devices with radioactive material as the only source of radiation.

(gggg) "Radiation Safety Officer" (RSO) means an individual who has the knowledge and responsibility to apply appropriate radiation protection regulations.

(hhhh) "Radioactive material" means any solid, liquid, or gas which emits radiation spontaneously.

(iiii) "Radioactivity" means the transformation of unstable atomic nuclei by

Rule .01(2)(iiii)

the emission of radiation.

(jjjj) "Regulations of the U.S. Department of Transportation" means the regulations in 49 CFR Parts 100-189.

(kkkk) "Rem" means the special unit of any of the quantities expressed as dose equivalent. The dose equivalent in rem is equal to the absorbed dose in rad multiplied by the quality factor (1 rem = 0.01 Sievert).

(llll) "Research and development" means

1. Theoretical analysis, exploration, or experimentation; or
2. The extension of investigative findings and theories of a scientific or technical nature into practical application for experimental and demonstration purposes, including the experimental production and testing of models, devices, equipment, materials, and processes. Research and development does not include the internal or external administration of radiation or radioactive material to human beings.

(mmmm) "Restricted area" means any area to which access is limited by the licensee for purposes of protecting individuals against undue risks from exposure to sources of radiation and radioactive material. A restricted area does not include areas used as residential quarters, but separate rooms in a residential building may be set apart as a restricted area.

(nnnn) "Roentgen" means the special unit of exposure. One Roentgen (R) equals 2.58×10^{-4} Coulombs/kilogram of air.

(oooo) "Sealed source" means radioactive material that is permanently bonded or fixed in a capsule or matrix designed to prevent release and dispersal of the radioactive material under the most severe conditions which are likely to be encountered in normal use and handling.

(pppp) "Shallow dose equivalent" (H_s), which applies to the external exposure of the skin or an extremity, means the dose equivalent at a tissue depth of 0.007 centimeter (7 mg/cm^2) averaged over an area of \pm one square centimeter.

(qqqq) "SI" means an abbreviation of the International System of Units.

(rrrr) "Sievert" means the SI unit of any of the quantities expressed as dose

Rule .01(2)(rrrr)

equivalent. The dose equivalent in Sievert is equal to the absorbed dose in Gray multiplied by the quality factor ($1 \text{ Sv} = 100 \text{ rem}$).

(ssss) "Site boundary" means that line beyond which the land or property is not owned, leased, or otherwise controlled by the licensee.

(tttt) "Source material" means

1. Uranium or thorium, or any combination thereof, in any physical or chemical form; or
2. Ores that contain by weight one-twentieth of \pm one percent (0.05 percent) or more of uranium, thorium, or any combination thereof. Source material does not include special nuclear material.

(uuuu) "Source material milling" means any activity that results in the production of byproduct material as defined by definition .01(2)(o)2. of byproduct material.

(vvv) "Source of radiation" means any radioactive material or any device or equipment emitting, or capable of producing, radiation.

(www) "Special form radioactive material" means radioactive material which satisfies the following conditions:

1. It is either a single solid piece or is contained in a sealed capsule that can be opened only by destroying the capsule;
2. The piece or capsule has at least one dimension not less than 5 five millimeters (0.197 inch); and
3. It satisfies the test requirements specified by the U.S. Nuclear Regulatory Commission. A special form encapsulation designed in accordance with the U.S. Nuclear Regulatory Commission requirements in effect on June 30, 1983, and constructed prior to July 1, 1985, may continue to be used. A special form encapsulation either designed or constructed after June 30, 1985, must meet requirements of this definition applicable at the time of its design or construction.

(xxxx) "Special nuclear material" means:

1. Plutonium, uranium-233, uranium enriched in the isotope 233 or in the isotope 235, and any other material that the U.S. Nuclear

Rule .01(2)(xxxx)1.

Regulatory Commission, pursuant to the provisions of section 51 of the Atomic Energy Act of 1954, as amended, determines to be special nuclear material but does not include source material; or

2. Any material artificially enriched by any of the foregoing but does not include source material.

(yyyy) "Special nuclear material in quantities not sufficient to form a critical mass" means uranium enriched in the isotope U-235 in quantities not exceeding 350 grams of contained U-235; uranium-233 in quantities not exceeding 200 grams; plutonium in quantities not exceeding 200 grams; or any combination of them in accordance with the following formula: For each kind of special nuclear material, determine the ratio between the quantity of that special nuclear material and the quantity specified above for the same kind of special nuclear material. The sum of such ratios for all of the kinds of special nuclear material in combination shall not exceed 1.

For example, the following quantities in combination would not exceed the limitation and are within the formula:

$$\frac{175 \text{ (grams contained U-235)}}{350} + \frac{50 \text{ (grams U-233)}}{200} + \frac{50 \text{ (grams Pu)}}{200} \leq 1$$

- (zzzz) "Survey" means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of sources of radiation. When appropriate, such evaluation includes, but is not limited to, tests, physical examinations, and measurements of levels of radiation or concentrations of radioactive material present.
- (aaaaa) "Test" means the process of verifying compliance with an applicable regulation.
- (bbbbb) "This Chapter" means all of the Rules in Chapter 391-3-17.
- (ccccc) "Total effective dose equivalent" (TEDE) means the sum of the deep dose equivalent for external exposures and the committed effective dose equivalent for internal exposures.
- (ddddd) "U.S. Department of Energy" means the Department of Energy established by Public Law 95-91, August 4, 1977, 91 Stat. 565, 42 Rule .01(2)(ddddd)
- U.S.C. 7101 et seq., to the extent that the Department exercises functions formerly vested in the U.S. Atomic Energy Commission, its Chairman, members, officers, and components and transferred to the U.S. Energy Research and Development Administration and to the Administrator thereof pursuant to sections 104(b), (c) and (d) of the Energy Reorganization Act of 1974 (Public Law 93-438, October 11, 1974, 88 Stat. 1233 at 1237, 42 U.S.C. 5814, effective January 19, 1975) and retransferred to the Secretary of Energy pursuant to section 301(a) of the Department of Energy Organization Act (Public Law 95-91, August 4, 1977, 91 Stat. 565 at 577-578, 42 U.S.C. 7151, effective October 1, 1977).
- (eeeeee) "Unrefined and unprocessed ore" means ore in its natural form prior to any processing, such as grinding, roasting, beneficiating, or refining.
- (fffff) "Unrestricted area" means an area to which access is neither limited nor controlled by the licensee.
- (ggggg) "Very High Radiation Area" means an area, accessible to individuals, in which radiation levels could result in an individual receiving an absorbed dose in excess of 500 rads (5 Grays) in one

hour at one meter from a radiation source or from any surface that the radiation penetrates.

- (hhhhh) "Waste" means those low-level radioactive wastes that are acceptable for disposal in a land disposal facility. For the purposes of this definition, low-level waste has the same meaning as in the Low-Level Radioactive Waste policy Act, P.L. 96-573, as amended by P.L. 99-240, effective January 15, 1986; that is, radioactive waste (a) not classified as high-level radioactive waste, spent nuclear fuel, or byproduct material as defined in Section 11e.(2) of the Atomic Energy Act (uranium or thorium tailings and waste), and (b) classified as low-level radioactive waste consistent with existing law and in accordance with (a) above by the U.S. Nuclear Regulatory Commission.
- (iiii) "Waste handling licensees" mean persons licensed to receive and store radioactive wastes prior to disposal and/or persons licensed to dispose of radioactive waste.
- (jjjj) "Weekly" means once every calendar week, not to exceed an interval of 40 ten days.
- (kkkkk) "Whole body" means, for purposes of external exposure, head, trunk, including male gonads, arms above the elbow, or legs above the knee.

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- (IIII) "Worker" means an individual engaged in work under a license issued by the Department and controlled by a licensee. If the licensee is an individual rather than one of the other legal entities defined under "person," the radiation exposure limits for the worker also apply to the individual who is the licensee.
- (mmmmm) "Working level" (WL) means any combination of short-lived radon daughters in 4 one liter of air that will result in the ultimate emission of 1.3×10^5 MeV of potential alpha particle energy. The short-lived radon daughters for radon-222 are: polonium-218, lead-214, bismuth-214, and polonium-214; and for radon-220: polonium-216, lead-212, bismuth-212, and polonium-212.
- (nnnnn) "Working level month" (WLM) means an exposure to 4 one working level for 170 hours. Two thousand working hours per year divided by 12 months per year is approximately equal to 170 hours per month.
- (ooooo) "Year" means the period of time beginning in January used to

determine compliance with the provisions of this Chapter. The licensee may change the starting date of the year used to determine compliance by the licensee provided that the change is made at the beginning of the year and that no day is omitted or duplicated in consecutive years.

(3) Exemptions from the Regulatory Requirements.

- (a) General Provision. The Department may, upon application or upon its own initiative, grant such exemptions or exceptions from the requirements of this Chapter as it determines are authorized by law and will not result in undue hazard to public health and safety or property.
- (b) U.S. Department of Energy Contractors and U.S. Nuclear Regulatory Commission Contractors. Any U.S. Department of Energy contractor or subcontractor and any U.S. Nuclear Regulatory Commission contractor or subcontractor of the following categories operating within this State are exempt from this Chapter to the extent that such contractor or subcontractor under his contract receives, possesses, uses, transfers, or acquires sources of radiation:
1. Prime contractors performing work for the U.S. Department of Energy at U.S. government-owned or -controlled sites, including the transportation of sources of radiation to or from such sites and the performance of contract services during temporary interruptions of such transportation;

Rule .01(3)(b)2.

2. Prime contractors of the U.S. Department of Energy performing research in, or development, manufacture, storage, testing, or transportation of, atomic weapons or components thereof;
3. Prime contractors of the U.S. Department of Energy using or operating nuclear reactors or other nuclear devices in a United States government-owned vehicle or vessel; and
4. Any other prime contractor or subcontractor of the U.S. Department of Energy or of the U.S. Nuclear Regulatory Commission when the Department and the Nuclear Regulatory Commission jointly determine:
 - (i) That the exemption of the prime contractor or subcontractor is authorized by law; and

- (ii) That, under the terms of the contract or subcontract, there is adequate assurance that the work thereunder can be accomplished without undue risk to public health and safety.

(4) Records. Each licensee shall maintain records showing the receipt, transfer, and Rule .01(4)

disposal of all sources of radiation. Additional record requirements are specified elsewhere in this Chapter.

(5) Inspections.

(a) Each licensee shall afford the Department at all reasonable times opportunity to inspect sources of radiation and the premises and facilities wherein such sources of radiation are used or stored.

(b) Each licensee shall make available to the Department for inspection, upon reasonable notice, records maintained pursuant to this Chapter.

(c) The Department or its designated representative is authorized under the authority of O.C.G.A. 31-5-5(b) to classify as confidential and privileged such documents, reports, and other information and data obtained from persons, firms, corporations, municipalities, counties, and other public authorities and political subdivisions where such matters relate to:

1. Trade secrets and commercial or financial information furnished to the Department on a privileged or confidential basis. Matters

Rule .01(5)(c)1.

subject to this exemption are those which are customarily held in confidence by the originator. They include, but are not limited to:

- (i) Information received in confidence, such as trade secrets, inventions, and proprietary data;
- (ii) Technical reports and data, designs, drawings, specifications, formulas, or other types of proprietary information which are furnished to the Department or which are generated or developed by the Department or for the Department under contract.

2. Personnel and medical files and similar files, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy. Examples of files exempt from disclosure include, but are not limited to names or identifying information regarding individuals who have received exposure to radiation.
- (d) Discovery of material qualified pursuant to 391-3-17-.01(5)(c) shall be subject to the statutory requirements found in O.C.G.A. 31-5-5.
- (6) Tests. Each licensee shall perform upon instructions from the Department, or shall permit the Department to perform, such reasonable tests as the Department deems appropriate or necessary, including, but not limited to, tests of:
- (a) Sources of radiation;
- (b) Facilities wherein sources of radiation are used or stored;
- (c) Radiation detection and monitoring instruments; and
- (d) Other equipment and devices used in connection with utilization or storage of licensed sources of radiation.
- (7) Additional Requirements. The Department, by Rule or Regulation, and the Director by Order, may impose upon any licensee such requirements in addition to those established in this Chapter as it deems appropriate or necessary to minimize danger to public health and safety or property.
- (8) Violations.
- (a) An injunction or other court order may be obtained prohibiting any violation of the provisions of the Act, this Chapter, or any Order issued thereunder in accordance with Rule 391-3-17-.11. Any person who willfully violates any provision of the Act, this Chapter, or any Order
- Rule .01(8)(a)
- issued thereunder may be guilty of a misdemeanor as provided by law. Violators of this Chapter may also be subject to civil penalties in accordance with O.C.G.A. 31-13-15.
- (b) Any licensee, certificate of registration holder, applicant for a license or certificate of registration, employee of a licensee, certificate of registration holder or applicant; or any contractor (including a supplier or consultant), subcontractor, employee of a contractor or subcontractor of any licensee or certificate of registration holder or applicant for a license or certificate of registration, who knowingly provides to any licensee, applicant,

certificate holder, contractor, or subcontractor, any components, equipment, materials, or other goods or services that relate to a licensee's, certificate holder's or applicant's activities in this part, may not:

1. Engage in deliberate misconduct that causes or would have caused, if not detected, a licensee, certificate of registration holder, or applicant to be in violation of any Rule, Regulation, or Order; or any term, condition, or limitation of any license issued by the Department; or
2. Deliberately submit to the Department, a licensee, certificate of registration holder, an applicant, or a licensee's, certificate holder's or applicant's, contractor or subcontractor, information that the person submitting the information knows to be incomplete or inaccurate in some respect material to the Department.

(c) A person who violates 8(b)1. or 8(b)2. may be subject to enforcement action in accordance with the provisions of Rule .11 of this Chapter.

(d) For the purposes of 8(b)1. deliberate misconduct by a person means an intentional act or omission that the person knows:

1. Would cause a licensee, certificate of registration holder or applicant to be in violation of any Rule, Regulation, or Order; or any term, condition, or limitation, of any license issued by the Department; or
2. Constitutes a violation of a requirement, procedure, instruction, contract, purchase order, or policy of a licensee, certificate of registration holder, applicant, contractor, or subcontractor.

(9) Impounding. The Department shall have the authority in the event of an emergency to
Rule .01(9)

impound or order the impounding of radioactive material in the possession of any person who is not equipped to observe or fails to observe the provisions of this Chapter or any Rules issued thereunder.

(a) Upon a showing that the emergency no longer exists and the owner of the radioactive material has demonstrated that he has achieved and is capable of maintaining compliance with the Act, the terms

and conditions of his license, and all Rules, Regulations, and Orders of the Department, the Department may return the impounded radioactive material to its owner.

- (b) In the event an owner cannot demonstrate his ability to achieve and maintain compliance with the Act, the terms and conditions of his license, and all Rules, Regulations, and Orders of the Department, the Department is authorized to seek a court order condemning such radioactive material and providing for its destruction or other disposition for the health and safety of the populace.

(10) Severability. Should any section, paragraph, sentence, clause or phrase of this Chapter be declared unconstitutional or invalid for any reason, the remainder of this Chapter shall not be affected thereby.

(11) Units of Exposure and Dose.

- (a) As used in this Chapter, the unit of Exposure is the Coulomb per kilogram (C/kg). One Roentgen is equal to 2.58×10^{-4} Coulomb per kilogram of air.

- (b) As used in this Chapter, the units of dose are:

1. Gray (Gy) is the SI unit of absorbed dose. One Gray is equal to an absorbed dose of 1 Joule/kilogram (100 rad).
2. Rad is the special unit of absorbed dose. One rad is equal to an absorbed dose of 100 ergs/gram or 0.01 Joule/kilogram (0.01 Gy).
3. Rem is the special unit of any of the quantities expressed as dose equivalent. The dose equivalent in rem is equal to the absorbed dose in rad multiplied by the quality factor (1 rem = 0.01 Sv).
4. Sievert is the SI unit of any of the quantities expressed as dose equivalent. The dose equivalent in Sievert is equal to the

Rule .01(11)(b)4.

absorbed dose in Gray multiplied by the quality factor (1 Sv = 100 rem).

- (c) As used in this Chapter, the quality factors for converting absorbed dose to dose equivalent are shown in Table I.

TABLE I
QUALITY FACTORS AND ABSORBED DOSE EQUIVALENCIES

TYPE OF RADIATION	Quality Factor (Q)	Absorbed Dose Equal to a Unit Dose Equivalent ^a
X, gamma, or beta radiation and high-speed electrons	1	1
Alpha particles, multiple-charged particles, fission fragments and heavy particles of unknown charge	20	0.05
Neutrons of unknown energy	10	0.1
High-energy protons	10	0.1

Absorbed dose in rad equal to 1 rem or the absorbed dose in Gray equal to 1 Sv.

- (d) If it is more convenient to measure the neutron fluence rate than to determine the neutron dose equivalent rate in Sievert per hour or rem per hour, as provided in (11)(c) of this Rule, 0.01 Sv (1 rem) of neutron radiation of unknown energies may, for purposes of this Chapter, be assumed to result from a total fluence of 25 million neutrons per square centimeter incident upon the body. If sufficient information exists to estimate the approximate energy distribution of the neutrons, the licensee may use the fluence rate per unit dose equivalent or the appropriate Q value from Table II to convert a measured tissue dose in Gray or rad to dose equivalent in Sievert or rem.

Rule .01(11)(d)

TABLE II
MEAN QUALITY FACTORS, Q, AND FLUENCE PER UNIT DOSE
EQUIVALENT FOR MONOENERGETIC NEUTRONS

	Neutron Energy (MeV)	Quality Factor ^a (Q)	Fluence per Unit Dose Equivalent ^b (neutrons cm ⁻² rem ⁻¹)	Fluence per Unit Dose Equivalent ^b (neutrons cm ⁻² Sv ⁻¹)
(thermal)	2.5 x 10 ⁻⁸	2	980 x 10 ⁶	980 x 10 ⁸
	1 x 10 ⁻⁷	2	980 x 10 ⁶	980 x 10 ⁸
	1 x 10 ⁻⁶	2	810 x 10 ⁶	810 x 10 ⁸
	1 x 10 ⁻⁵	2	810 x 10 ⁶	810 x 10 ⁸
	1 x 10 ⁻⁴	2	840 x 10 ⁶	840 x 10 ⁸
	1 x 10 ⁻³	2	980 x 10 ⁶	980 x 10 ⁸
	1 x 10 ⁻²	2.5	1010 x 10 ⁶	1010 x 10 ⁸
	1 x 10 ⁻¹	7.5	170 x 10 ⁶	170 x 10 ⁸
	5 x 10 ⁻¹	11	39 x 10 ⁶	39 x 10 ⁸
	1	11	27 x 10 ⁶	27 x 10 ⁸
	2.5	9	29 x 10 ⁶	29 x 10 ⁸
	5	8	23 x 10 ⁶	23 x 10 ⁸
	7	7	24 x 10 ⁶	24 x 10 ⁸
	10	6.5	24 x 10 ⁶	24 x 10 ⁸
	14	7.5	17 x 10 ⁶	17 x 10 ⁸
	20	8	16 x 10 ⁶	16 x 10 ⁸
	40	7	14 x 10 ⁶	14 x 10 ⁸
	60	5.5	16 x 10 ⁶	16 x 10 ⁸
	1 x 10 ²	4	20 x 10 ⁶	20 x 10 ⁸
	2 x 10 ²	3.5	19 x 10 ⁶	19 x 10 ⁸
	3 x 10 ²	3.5	16 x 10 ⁶	16 x 10 ⁸
	4 x 10 ²	3.5	14 x 10 ⁶	14 x 10 ⁸

^aValue of quality factor (Q) at the point where the dose equivalent is maximum in a 30-cm diameter cylinder tissue-equivalent phantom.

^bMonoenergetic neutrons incident normally on a 30-cm diameter cylinder tissue-equivalent phantom.

Rule .01(12)

- (12) Units of Radioactivity. For purposes of this Chapter, activity is expressed in the SI unit of Becquerel (Bq) or in the special unit of Curie (Ci), or their multiples, or disintegrations or transformations per unit of time.
- (a) One Becquerel (Bq) = 1 disintegration or transformation per second.
- (b) One Curie (Ci) = 3.7×10^{10} disintegrations or transformations per second = 3.7×10^{10} Becquerel (Bq) = 2.22×10^{12} disintegrations or transformations per minute.
- (13) Communications. All communications and reports concerning this Chapter, and applications filed thereunder should be addressed to the Georgia Department of Natural Resources/EPD, Radioactive Materials Program, at the current address or at 205 Butler Street, Floyd Towers East, Atlanta, Georgia, 30334-1202.

Authority Ga. L 1964, pp. 499, 507, 566-575, as amended (Georgia Radiation Control Act).

391-3-17-.02 LICENSING OF RADIOACTIVE MATERIAL. AMENDED.(1) Purpose and Scope.

- (a) This Rule, 391-3-17-.02, provides for the licensing of radioactive material. No person shall receive, possess, use, transfer, own, or acquire radioactive material except as authorized in a specific or general license issued pursuant to this Rule or as otherwise provided in this Chapter. However, nothing in this Rule shall apply to any person to the extent such person is subject to regulation by the U.S. Nuclear Regulatory Commission.
- (b) In addition to the requirements of this Rule, all licensees are subject to the requirements of Rules .01, .03, .06, .07, .10, and .11 of this Chapter. Licensees engaged in industrial radiographic operations are subject to the requirements of Rule .04 of this Chapter. Licensees using radioactive material in the healing arts are also subject to the requirements of Rule .05 of this Chapter. Licensees engaged in the extrusion, mining, storage, beneficiating, processing, use, transfer, or disposal of NORM in such a manner as to alter the chemical properties or physical state of the NORM or its potential exposure pathways to humans are also subject to the requirements of Rule .08 of this Chapter. Licensees using irradiators whose dose rate exceeds 500 rads (5 Grays) per hour at one meter from the radioactive sealed sources are also subject to the requirements of Rule .09 of this Chapter.

Note: All numbered and lettered references within this Rule refer to parts of this Rule, unless stated otherwise.

(2) Exemptions/Source Material.

- (a) Any person is exempt from this Rule to the extent that such person receives, possesses, uses, owns, or transfers source material in any chemical mixture, compound, solution, or alloy in which the source material is by weight less than 1/20 of \pm one percent (0.05 percent) of the mixture, compound, solution, or alloy.
- (b) Any person is exempt from this Rule to the extent that such person receives, possesses, uses, or transfers unrefined and unprocessed ore containing source material; provided that, except as authorized in a specific license, such person shall not refine or process such ore.

Rule .02(2)(c)

- (c) Any person is exempt from this Rule to the extent that such person receives, possesses, uses, or transfers:
1. Any quantities of thorium contained in:
 - (i) Incandescent gas mantles,
 - (ii) Vacuum tubes,
 - (iii) Welding rods,
 - (iv) Electric lamps for illuminating purposes provided that each lamp does not contain more than 50 milligrams of thorium,
 - (v) Germicidal lamps, sunlamps, and lamps for outdoor or industrial lighting provided that each lamp does not contain more than 2 two grams of thorium,
 - (vi) Rare earth metals and compounds, mixtures, and products containing not more than 0.25 percent by weight thorium, uranium, or any combination of these, or
 - (vii) Personnel neutron dosimeters, provided that each dosimeter does not contain more than 50 milligrams of thorium;
 2. Source material contained in the following products:
 - (i) Glazed ceramic tableware, provided that the glaze contains not more than 20 percent by weight source material,
 - (ii) Glassware containing not more than 40 ten percent by weight source material, but not including commercially manufactured glass brick, pane glass, ceramic tile, or other glass or ceramic used in construction,
 - (iii) Glass enamel or glass enamel frit containing not more than 40 ten percent by weight source material imported or ordered for importation into the United States, or initially distributed by manufacturers in the United States, before July 25, 1983, or

Rule .02(2)(c)2.(iv)

- (iv) Piezoelectric ceramic containing not more than 2 two percent by weight source material;
3. Photographic film, negatives, and prints containing uranium or thorium;
 4. Any finished product or part fabricated of, or containing, tungsten-thorium or magnesium-thorium alloys, provided that the thorium content of the alloy does not exceed 4 four percent by weight and that this exemption shall not be deemed to authorize the chemical, physical, or metallurgical treatment or processing of any such product or part;
 5. Uranium contained in counterweights installed in aircraft, rockets, projectiles, and missiles, or stored or handled in connection with installation or removal of such counterweights, provided that:
 - (i) The counterweights are manufactured in accordance with a specific license issued by the U.S. Nuclear Regulatory Commission (NRC), authorizing distribution by the licensee pursuant to 10 CFR Part 40,
 - (ii) Each such counterweight has been impressed with the following legend clearly legible through any plating or other covering: "DEPLETED URANIUM",
 - (iii) Each counterweight is durably and legibly labeled or marked with the identification of the manufacturer and the statement: "UNAUTHORIZED ALTERATIONS PROHIBITED", and
 - (iv) This exemption shall not be deemed to authorize the chemical, physical, or metallurgical treatment or processing of any such counterweights other than repair or restoration of any plating or other covering;

Note: The requirements specified in (2)(c)5.(ii) and (iii) of need not be met by counterweights manufactured prior to December 31, 1969, provided that such counterweights are impressed with the legend: "CAUTION - RADIOACTIVE MATERIAL - URANIUM".

Rule .02(2)(c)6.

6. Natural or depleted uranium metal used as shielding constituting part of any shipping container which is conspicuously and legibly impressed with the legend: "CAUTION - RADIOACTIVE SHIELDING - URANIUM" and the uranium metal is encased in mild steel or equally fire-resistant metal of minimum wall thickness of 1/8 inch (3.2 mm);
 7. Thorium contained in finished optical lenses, provided that each lens does not contain more than 30 percent by weight of thorium, and that this exemption shall not be deemed to authorize either:
 - (i) The shaping, grinding, or polishing of such lens or manufacturing processes other than the assembly of such lens into optical systems and devices without any alteration of the lens, or
 - (ii) The receipt, possession, use, or transfer of thorium contained in contact lenses, in spectacles, or in eyepieces in binoculars or other optical instruments;
 8. Uranium contained in detector heads for use in fire detection units, provided that each detector head contains not more than 0.005 microcurie of uranium; or
 9. Thorium contained in any finished aircraft engine part containing nickel-thoria alloy, provided that:
 - (i) The thorium is dispersed in the nickel-thoria alloy in the form of finely divided thoria (thorium dioxide), and
 - (ii) The thorium content in the nickel-thoria alloy does not exceed 4 four percent by weight.
- (d) The exemptions in paragraph (2)(c) do not authorize the manufacture of any of the products described.

(3) Exemptions/Radioactive Material Other Than Source Material.

- (a) Exempt Concentrations.

Rule .02(3)(a)1.

1. Except as provided in (3)(a)2., any person is exempt from this Chapter to the extent that such person receives, possesses, uses, transfers, owns, or acquires products containing radioactive material in concentrations not in excess of those listed in (21)(a), Schedule A.
2. No person may introduce radioactive material into a product or material knowing or having reason to believe that it will be transferred to persons exempt under (3)(a)1. or equivalent Regulations of the U.S. Nuclear Regulatory Commission, any Agreement State, or a Licensing State, except in accordance with a specific license issued pursuant to (11)(a) or the general license provided in (20).

(b) Exempt Quantities.

1. Except as provided in (3)(b)2. and 3., any person is exempt from this Chapter to the extent that such person receives, possesses, uses, transfers, owns, or acquires radioactive material in individual quantities each of which does not exceed the applicable quantity set forth in (21)(b), Schedule B.
2. Paragraph (3)(b) does not authorize the production, packaging, or repackaging of radioactive material for purposes of commercial distribution, or the incorporation of radioactive material into products intended for commercial distribution.
3. No person may, for purposes of commercial distribution, transfer radioactive material in the individual quantities set forth in (21)(b), Schedule B, knowing or having reason to believe that such quantities of radioactive material will be transferred to persons exempt under (3)(b) or equivalent regulations of the U.S. Nuclear Regulatory Commission, any Agreement State, or a Licensing State, except in accordance with a specific license issued by the U.S. Nuclear Regulatory Commission pursuant to Section 32.18 of 10 CFR, Part 32, or by the Department pursuant to (11)(b) which license states that the radioactive material may be transferred by the licensee to persons exempt under (3)(b) or the equivalent regulations of the U.S. Nuclear Regulatory Commission, an Agreement State, or a Licensing State.

Rule .02(3)(c)

(c) Exempt Items.

1. Certain Items Containing Radioactive Material. Except for persons who apply radioactive material to, or who incorporate radioactive material into, the following products, any person is exempt from this Chapter to the extent that he receives, possesses, uses, transfers, owns, or acquires the following products:

Note: Authority to transfer possession or control by the manufacturer, processor, or producer of any equipment, device, commodity, or other product containing byproduct material whose subsequent possession, use, transfer, and disposal by all other persons are exempted from regulatory requirements may be obtained only from the U.S. Nuclear Regulatory Commission, Washington, D.C., 20555.

- (i) Timepieces or hands or dials containing not more than the following specified quantities of radioactive material and not exceeding the following specified radiation dose rates:
 - (I) 25 millicuries (925 MBq) of tritium per timepiece.
 - (II) 5 millicuries (185 MBq) of tritium per hand.
 - (III) 15 millicuries (555 MBq) of tritium per dial (bezels when used shall be considered as part of the dial).
 - (IV) 100 microcuries (3.7 MBq) of promethium-147 per watch or 200 microcuries (7.4 MBq) of promethium-147 per any other timepiece.
 - (V) 20 microcuries (0.74 MBq) of promethium-147 per watch hand or 40 microcuries (1.48 MBq) of promethium-147 per other timepiece hand.
 - (VI) 60 microcuries (2.22 MBq) of promethium-147 per watch dial or 120 microcuries (4.44 MBq) of promethium-147 per other timepiece dial (bezels when used shall be considered as part of the dial).
 - (VII) The levels of radiation from hands and dials containing promethium-147 will not exceed, when measured through 50 milligrams per square centimeter of absorber:

Rule .02(3)(c)1.(i)(VII)I.

- I. For wrist watches, 0.1 millirad (1 μ Gy) per hour at \pm ten centimeters from any surface.
 - II. For pocket watches, 0.1 millirad (1 μ Gy) per hour at \pm one centimeter from any surface.
 - III. For any other timepiece, 0.2 millirad (2 μ Gy) per hour at \pm ten centimeters from any surface.
- (VIII) One microcurie (37 kBq) of radium-226 per timepiece in timepieces acquired prior to July 12, 1982.
- (ii) Lock illuminators containing not more than 15 millicuries (555 MBq) of tritium or not more than 2 two millicuries (74 MBq) of promethium-147 installed in automobile locks. The levels of radiation from each lock illuminator containing promethium-147 will not exceed \pm one millirad (10 μ Gy) per hour at \pm one centimeter from any surface when measured through 50 milligrams per square centimeter of absorber.
 - (iii) Precision balances containing not more than \pm one millicurie (37 MBq) of tritium per balance or not more than 0.5 millicurie (18.5 MBq) of tritium per balance part.
 - (iv) Automobile shift quadrants containing not more than 25 millicuries (925 MBq) of tritium.
 - (v) Marine compasses containing not more than 750 millicuries (27.8 GBq) of tritium gas and other marine navigational instruments containing not more than 250 millicuries (9.25 GBq) of tritium gas.
 - (vi) Thermostat dials and pointers containing not more than 25 millicuries (925 MBq) of tritium per thermostat.
 - (vii) Electron tubes, provided that the levels of radiation from each electron tube containing radioactive material will not exceed \pm one millirad (10 μ Gy) per hour at \pm one centimeter from any surface when measured through \geq seven milligrams per square centimeter of absorber. Provided also, that each tube does not contain more than one of the following specified quantities of radioactive material:

Rule .02(3)(c)1.(vii)(I)

- (I) 150 millicuries (5.55 GBq) of tritium per microwave receiver protector tube or ~~10~~ ten millicuries (370 MBq) of tritium per any other electron tube.
- (II) 1 microcurie (37 kBq) of cobalt-60.
- (III) 5 microcuries (185 kBq) of nickel-63.
- (IV) 30 microcuries (1.11 MBq) of krypton-85.
- (V) 5 microcuries (185 kBq) of cesium-137.
- (VI) 30 microcuries (1.11 MBq) of promethium-147.

NOTE: For the purpose of (3)(c)1.(vii), "Electron tubes" includes spark gap tubes, power tubes, gas tubes including glow lamps, receiving tubes, microwave tubes, indicator tubes, pick-up tubes, radiation detection tubes, and any other completely sealed tube that is designed to conduct or control electrical currents.

- (viii) Ionizing radiation measuring instruments containing, for purposes of internal calibration or standardization, one or more sources of radioactive material, provided that:
 - (I) Each source contains no more than ~~4~~ one exempt quantity set forth in (21)(b), Schedule B;
 - (II) Each instrument contains no more than ~~40~~ ten exempt quantities. For purposes of this requirement, an instrument's source(s) may contain either one or different types of radionuclides and an individual exempt quantity may be composed of fractional parts of ~~4~~ one or more of the exempt quantities specified in (21)(b), Schedule B, provided that the sum of such fractions shall not exceed unity; and
 - (III) For purposes of (3)(c)1.(viii), 0.05 microcurie (1.85 kBq) of americium-241 is considered an exempt quantity under (21)(b), Schedule B; or

Rule .02(3)(c)1.(ix)

- (ix) Spark gap irradiators containing not more than 4 one microcurie (37 kBq) of cobalt-60 per spark gap irradiator for use in electrically-ignited fuel oil burners having a firing rate of at least 3 three gallons (11.4 liters) per hour.
2. Self-Luminous Products Containing Radioactive Material.
- (i) Tritium, krypton-85, or promethium-147. Except for persons who manufacture, process, or produce self-luminous products containing tritium, krypton-85, or promethium-147, any person is exempt from this Chapter to the extent that such person receives, possesses, uses, transfers, owns, or acquires tritium, krypton-85 or promethium-147 in self-luminous products manufactured, processed, produced, imported, or transferred in accordance with a specific license issued by the U.S. Nuclear Regulatory Commission pursuant to Section 32.22 of 10 CFR, Part 32, which license authorizes the transfer of the product to persons who are exempt from regulatory requirements. This exemption does not apply to tritium, krypton-85, or promethium-147 used in products for frivolous purposes or in toys or adornments.
 - (ii) Radium-226. Any person is exempt from this Chapter to the extent that such person receives, possesses, uses, transfers, or owns articles containing less than 0.1 microcurie (3.7 kBq) of radium-226 which were acquired prior to July 12, 1982.
3. Gas and Aerosol Detectors Containing Radioactive Material.
- (i) Except for persons who manufacture, process, or produce gas and aerosol detectors containing radioactive material, any person is exempt from this Chapter to the extent that such person receives, possesses, uses, transfers, owns, or acquires radioactive material in gas and aerosol detectors designed to protect life or property from fires and airborne hazards provided that detectors containing radioactive material shall have been manufactured, imported, or transferred in accordance with a specific license issued by the U.S. Nuclear Regulatory Commission pursuant to Section 32.26 of 10 CFR, Part 32; or a Licensing State pursuant to (11)(c), which authorizes the transfer of the detectors to persons who are exempt from regulatory requirements. (See Note, page 2-6)

Rule .02(3)(c)3.(ii)

- (ii) Gas and aerosol detectors containing naturally-occurring and accelerator-produced radioactive material (NARM) previously manufactured and distributed to general licensees in accordance with a specific license issued by an Agreement State shall be considered exempt under (3)(c)3.(i), provided that the device is labeled in accordance with the specific license authorizing distribution of the generally licensed device, and provided further that they meet the requirements of (11)(c).
 - (iii) Gas and aerosol detectors containing NARM previously manufactured and distributed in accordance with a specific license issued by a Licensing State shall be considered exempt under (3)(c)3.(i), provided that the device is labeled in accordance with the specific license authorizing distribution, and provided further that they meet the requirements of (11)(c).
4. Resins Containing Scandium-46 and Designed for Sand Consolidation in Oil Wells. Any person is exempt from this Chapter to the extent that such person receives, possesses, uses, transfers, owns, or acquires synthetic plastic resins containing scandium-46 which are designed for sand consolidation in oil wells. Such resins shall have been manufactured or imported in accordance with a specific license issued by the U.S. Nuclear Regulatory Commission, or shall have been manufactured in accordance with the specifications contained in a specific license issued by the Department or any Agreement State to the manufacturer of such resins pursuant to licensing requirements equivalent to those in Sections 32.16 and 32.17 of 10 CFR, Part 32, of the regulations of the U.S. Nuclear Regulatory Commission. This exemption does not authorize the manufacture of any resins containing scandium-46.
5. Radioactive drug: Capsules containing carbon-14 urea for "in vivo" diagnostic use for humans.
- (i) Except as provided in .02(3)(c)5.(ii) and .02(3)(c)5.(iii), any person is exempt from the requirements for a license set forth in O.C.G.A. Section 31-13-5(a)(9) (Georgia Radiation Control Act) and from the regulations in this Chapter provided that such person receives, possesses, uses, transfers, owns, or acquires capsules containing one μCi (37

kBq) carbon-14 urea (allowing for nominal variation that may occur during the manufacturing process) each, for "in vivo" diagnostic use for humans.

Rule .02(3)(c)5.(ii)

- (ii) Any person who desires to use the capsules for research involving human subjects shall apply for and receive a specific license pursuant to Rule .02 and Rule .05 of this chapter.
- (iii) 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 Rule .02 of this chapter.
- (iv) Nothing in .02(3)(c)5. relieves persons from complying with applicable FDA, other Federal, and State requirements governing receipt, administration, and use of drugs.

(4) Types of Licenses. Licenses for radioactive materials are of two types: general and specific.

- (a) General licenses provided in this Rule are effective without the filing of applications with the Department or the issuance of licensing documents to the particular persons, although the filing of a certificate with the Department may be required by the particular general license. The general licensee is subject to all other applicable portions of this Chapter and any limitations of the general license.
- (b) Specific licenses require the submission of an application to the Department and the issuance of a licensing document by the Department. The licensee is subject to all applicable portions of this Chapter as well as any limitations specified in the licensing document.

(5) General Licenses - Source Material.

- (a) A general license is hereby issued authorizing persons to hold bare title to source material without regard to quantity. This general license does not authorize any person to receive, possess, use, or transfer source material.
- (b) A general license is hereby issued authorizing commercial and industrial firms, research, educational, and medical institutions, and State and local government agencies to use and transfer not more than 15 pounds (6.82 kg) of source material at any one time for research, development, educational, commercial, or operational purposes. A person authorized to

use or transfer source material, pursuant to this general license, may not receive more than a total of 150 pounds (68.2 kg) of source material in any one calendar year.

- (c) Persons who receive, possess, use, or transfer source material pursuant to the general license in (5)(b) are prohibited from administering source material, or the radiation therefrom, either externally or internally, to human

Rule .02(5)(c)

beings except as authorized by the Department in a specific license, and are exempt from the provisions of Rule .03 and Rule .07 of this Chapter to the extent that such receipt, possession, use, or transfer is within the terms of such general license; provided, however, that this exemption shall not be deemed to apply to any such person who is also in possession of source material under a specific license issued pursuant to this Rule.

- (d) Depleted Uranium in Industrial Products and Devices.
 1. A general license is hereby issued to receive, acquire, possess, use, or transfer, in accordance with the provisions of (5)(d)2., 3., 4., and 5., depleted uranium contained in industrial products or devices for the purpose of providing a concentrated mass in a small volume of the product or device.
 2. The general license in (5)(d)1. applies only to industrial products or devices which have been manufactured either in accordance with a specific license issued to the manufacturer of the products or devices pursuant to (11)(l) or in accordance with a specific license issued to the manufacturer by the U.S. Nuclear Regulatory Commission or an Agreement State which authorizes manufacture of the products or devices for distribution to persons generally licensed by the U.S. Nuclear Regulatory Commission or an Agreement State.
 3. Persons who receive, acquire, possess, or use depleted uranium pursuant to the general license established by (5)(d)1. shall:
 - (i) File Department form "Registration Certificate - Use of Depleted Uranium Under General License" with the Department. The form shall be submitted within 30 days after the first receipt or acquisition of such depleted uranium. The registrant shall furnish on the form the following information and such other information as may be required

by that form:

- (I) Name and address of the registrant;
- (II) A statement that the registrant has developed and will maintain procedures designed to establish physical control over the depleted uranium described in (5)(d)1. and designed to prevent transfer of such depleted uranium in any form, including metal scrap, to persons not authorized to receive the depleted uranium; and
- (III) Name and/or title, address, and telephone number of the individual duly authorized to act for and on behalf of

Rule .02(5)(d)3.(i)(III)

the registrant in supervising the procedures identified in (5)(d)3.(i)(II); and

- (ii) Report in writing to the Department any changes in information furnished by him in Department form "Registration Certificate - Use of Depleted Uranium Under General License". The report shall be submitted within 30 days after the effective date of such change.
4. A person who receives, acquires, possesses, or uses depleted uranium pursuant to the general license established by (5)(d)1:
- (i) Shall not introduce such depleted uranium, in any form, into a chemical, physical, or metallurgical treatment or process, except a treatment or process for repair or restoration of any plating or other covering of the depleted uranium;
 - (ii) Shall not abandon such depleted uranium;
 - (iii) Shall transfer or dispose of such depleted uranium only by transfer in accordance with the provisions of (19). In the case where the transferee receives the depleted uranium pursuant to the general license established by (5)(d)1., the transferor shall furnish the transferee a copy of this Regulation and a copy of Department form "Registration Certificate - Use of Depleted Uranium Under General License". In the case where the transferee receives the depleted uranium pursuant to a general license contained in the U.S. Nuclear Regulatory Commission's or Agreement State's regulation equivalent to (5)(d)1., the transferor shall furnish the transferee a copy of this Regulation and a copy

of Department form "Registration Certificate - Use of Depleted Uranium Under General License "accompanied by a note explaining that use of the product or device is regulated by the U.S. Nuclear Regulatory Commission or Agreement State under requirements substantially the same as those in this Regulation;

- (iv) Shall report in writing to the Department the name and address of the person receiving the depleted uranium pursuant to such transfer within 30 days of any transfer.

- 5. Any person receiving, acquiring, possessing, using, or transferring depleted uranium pursuant to the general license established by (5)(d)1. is exempt from the requirements of Rule .03 and Rule .07 of this Chapter with respect to the depleted uranium covered by that general license.

Rule .02(6)

- (6) General Licenses - Radioactive Materials Other Than Source Material. Each general license issued under (6) has its own specific conditions and requirements.

- (a) Ownership of Radioactive Material. A general license is hereby issued to own radioactive material without regard to quantity. Notwithstanding any other provisions of this Rule, this general license does not authorize the manufacture, production, transfer, receipt, possession, or use of radioactive material.

- (b) Certain Devices and Equipment. A general license is hereby issued to transfer, receive, acquire, own, possess, and use radioactive material incorporated in the following devices or equipment which have been manufactured, tested, and labeled by the manufacturer in accordance with a specific license issued by the Department pursuant to (11)(d) or in accordance with the specifications contained in a specific license issued to the manufacturer by the U.S. Nuclear Regulatory Commission, an Agreement State, or a Licensing State for use pursuant to Section 31.3 of 10 CFR, Part 31. This general license is subject to the provisions of (3)(a)2., (13), (18), and (19) of this Rule, (4), (5), (6), (7), (8), (9) and (10) of Rule .01, and also of Rules 391-3-17-.03, .06, and .07 of this Chapter.

- 1. Static Elimination Device. Devices designed for use as static eliminators which contain, as a sealed source or sources, radioactive material consisting of a total of not more than 500 microcuries (18.5 MBq) of polonium-210 per device.

- 2. Ion Generating Tube. Devices designed for the ionization of air

which contain, as a sealed source or sources, radioactive material consisting of a total of not more than 500 microcuries (18.5 MBq) of polonium-210 per device or a total of not more than 50 millicuries (1.85 GBq) of hydrogen-3 (tritium) per device.

Note: Attention is directed particularly to the provisions of Rule 391-3-17-03 of this Chapter which relate to the labeling of containers.

- (c) Certain Measuring, Gauging, or Controlling Devices.
 - 1. A general license is hereby issued to commercial and industrial firms and to research, educational and medical institutions, individuals in the conduct of their business, and State or local government agencies to own, receive, acquire, possess, use, or transfer, in accordance with the provisions of (6)(c)2., 3., and 4., radioactive material, excluding special nuclear material, contained in devices designed and manufactured for the purpose of detecting, measuring, gauging, or controlling thickness, density, level, interface location, radiation,

Rule .02(6)(c)1.

leakage, or qualitative or quantitative chemical composition, or for producing light or an ionized atmosphere.

2. The general license in (6)(c)1. applies only to radioactive material contained in devices which have been manufactured and labeled in accordance with the specifications contained in a specific license issued by the Department pursuant to (11)(d) or in accordance with the specifications contained in a specific license issued by the U.S. Nuclear Regulatory Commission, an Agreement State, or a Licensing State, which authorizes distribution of devices to persons generally licensed by the U.S. Nuclear Regulatory Commission, an Agreement State, or a Licensing State.

Note: Regulations under the Federal Food, Drug, and Cosmetic Act authorizing the use of radioactive control devices in food production require certain additional labeling thereon which is found in Section 179.21 of the Code of Federal Regulations, Title 21.

3. Any person who owns, receives, acquires, possesses, uses, or transfers radioactive material in a device pursuant to the general license in (6)(c)1.:
 - (i) Shall assure that all labels affixed to the device at the time of receipt, and bearing a statement that removal of the label is prohibited, are maintained thereon and shall comply with all instructions and precautions provided by such labels;
 - (ii) Shall assure that the device is tested for leakage of radioactive material and proper operation of the on/off mechanism and indicator, if any, at no longer than 6 six-month intervals or at such other intervals as are specified in the label; however,
 - (I) Devices containing only krypton need not be tested for leakage of radioactive material, and
 - (II) Devices containing only tritium or not more than 100 microcuries (3.7 MBq) of other beta- and/or gamma-emitting material or 40 ten microcuries (0.37 MBq) of alpha-emitting material and devices held in storage in the original shipping container prior to initial installation need not be tested for any purpose;

Rule .02(6)(c)3.(iii)

- (iii) Shall assure that the tests required by (6)(c)3.(ii) and other testing, installation, servicing, and removal from installation involving the radioactive material, its shielding or containment, are performed:
 - (I) In accordance with the instructions provided by the labels, or
 - (II) By a person holding an applicable specific license from the Department, the U.S. Nuclear Regulatory Commission, an Agreement State, or a Licensing State to perform such activities;
- (iv) Shall maintain records showing compliance with the requirements of (6)(c)3.(ii) and (iii). The records shall show the results of tests. The records also shall show the dates of performance of, and the names of persons performing, testing, installation, servicing, and removal from installation concerning the radioactive material, its shielding, or containment. Records of tests for leakage of radioactive material required by (6)(c)3.(ii) shall be maintained for \pm one year after the next required leak test is performed. Records of tests of the on/off mechanism and indicator required by (6)(c)3.(ii) shall be maintained for \pm one year after the next required test of the on/off mechanism and indicator is performed. In case of transfer or disposal, records required by this paragraph (iv) shall be maintained for \pm one year after the transfer or disposal. Records which are required by (6)(c)3.(iii) shall be maintained until the Department authorizes their disposition.
- (v) Shall, upon the occurrence of a failure of or damage to, or any indication of a possible failure of or damage to, the shielding of the radioactive material or the on/off mechanism or indicator, or upon the detection of 0.005 microcurie (185 Bq) or more removable radioactive material, immediately suspend operation of the device until it has been repaired by the manufacturer or other person holding an applicable specific license from the Department, the U.S. Nuclear Regulatory Commission, an Agreement State, or a Licensing State to repair such devices, or disposed of by transfer to a person authorized by an applicable specific license to receive the radioactive material contained in the device and,

within 30 days, furnish to the Department a report containing a brief description of the event and the remedial action taken;

Rule .02(6)(c)3.(vi)

- (vi) Shall not abandon the device containing radioactive material;
 - (vii) Shall, as provided in (6)(c)3.(viii), transfer or dispose of the device containing radioactive material only by transfer to a specific licensee of the Department, the U.S. Nuclear Regulatory Commission, an Agreement State, or a Licensing State whose specific license authorizes him to receive the device and within 30 days after transfer of a device to a specific licensee shall furnish to the Department a report containing identification of the device by manufacturer's name and model number and the name and address of the person receiving the device. No report is required if the device is transferred to the specific licensee in order to obtain a replacement device;
 - (viii) shall transfer the device to another general licensee only:
 - (I) Where the device remains in use at a particular location. In such case the transferor shall give the transferee a copy of this Regulation and any safety documents identified in the label on the device and within 30 days of the transfer report to the Department the manufacturer's name and model number of the device transferred, the name and address of the transferee, and the name and/or position of a person constituting a point of contact between the Department and the transferee; or
 - (II) Where the device is held in storage in the original shipping container at its intended location of use prior to initial use by a general licensee; and
 - (ix) Shall comply with the provisions of Rule .03(1415) of this Chapter for reporting radiation incidents, or the theft or loss of licensed material, but shall be exempt from the other requirements contained in Rules .03 and .07 of this Chapter.
4. The general license in (6)(c)1. does not authorize the manufacture of devices containing radioactive material.

Rule .02(6)(c)5.

5. The general license provided in (6)(c)1. is subject to the provisions of (13), (18), and (19) of this rule, of paragraphs (4), (5), (6), (7), (8), (9) and (10) of Rule .01, and of Rule .06 of this Chapter.

(d) Luminous Safety Devices for Aircraft.

1. A general license is hereby issued to own, receive, acquire, possess, and use tritium or promethium-147 contained in luminous safety devices for use in aircraft, provided:
 - (i) Each device contains not more than ~~40~~ ten curies (370 GBq) of tritium or 300 millicuries (11.1 GBq) of promethium-147; and
 - (ii) Each device has been manufactured, assembled, or imported in accordance with a specific license issued by the U.S. Nuclear Regulatory Commission, or each device has been manufactured or assembled in accordance with the specifications contained in a specific license issued by the Department or any Agreement State to the manufacturer or assembler of such device pursuant to licensing requirements equivalent to those in Section 32.53 of 10 CFR, Part 32, of the regulations of the U.S. Nuclear Regulatory Commission.
2. Persons who own, receive, acquire, possess, or use luminous safety devices pursuant to the general license in (6)(d) are exempt from the requirements of Rules .03 and .07 of this Chapter, except that they shall comply with the provisions of Rule .03(1415) of this Chapter.
3. This general license does not authorize the manufacture, assembly, or repair of luminous safety devices containing tritium or promethium-147.
4. This general license does not authorize the ownership, receipt, acquisition, possession, or use of promethium-147 contained in instrument dials.
5. This general license is subject to the provisions of paragraphs (13), (18), and (19) of this Rule, of paragraphs (4), (5), (6), (7), (8), (9) and (10) of Rule .01, and of Rule .06 of this Chapter.

Rule .02(6)(e)

(e) Ice-Detection Devices.

1. A general license is hereby issued to own, receive, acquire, possess, use, and transfer strontium-90 contained in ice-detection devices, provided each device contains not more than 50 microcuries (1.85 MBq) of strontium-90 and each device has been manufactured or imported in accordance with a specific license issued by the U.S. Nuclear Regulatory Commission or each device has been manufactured in accordance with the specifications contained in a specific license issued by the Department or any Agreement State to the manufacturer of such device pursuant to licensing requirements equivalent to those in Section 32.61 of 10 CFR, Part 32, of the regulations of the U.S. Nuclear Regulatory Commission.
2. Persons who own, receive, acquire, possess, use, or transfer strontium-90 contained in ice-detection devices pursuant to the general license in (6)(e)1.:
 - (i) Shall, upon occurrence of visually observable damage, such as a bend or crack or discoloration from overheating to the device, discontinue use of the device until it has been inspected, tested for leakage, and repaired by a person holding a specific license or equivalent licensing document from the U.S. Nuclear Regulatory Commission or an Agreement State to manufacture or service such devices; or shall dispose of the device pursuant to the provisions of Rule .03(4213) of this Chapter;
 - (ii) Shall assure that all labels affixed to the device at the time of receipt and which bear a statement which prohibits removal of the labels are maintained thereon; and
 - (iii) Are exempt from the requirements of Rules .03 and .07 of this Chapter except that such persons shall comply with the provisions of Rule .03(4213) and (4415) of this Chapter.
3. This general license does not authorize the manufacture, assembly, disassembly, or repair of strontium-90 in ice-detection devices.
4. This general license is subject to the provisions of paragraphs (13), (18), and (19) of this Rule, of paragraphs (4), (5), (6), (7), (8), (9) and (10) of Rule .01, and of Rule .06 of this Chapter.

Rule .02(6)(f)

(f) Calibration and Reference Sources.

1. A general license is hereby issued to those persons listed below to own, receive, acquire, possess, use, and transfer, in accordance with the provisions of (6)(f)4. and 5., americium-241 in the form of calibration or reference sources:
 - (i) Any person who holds a specific license issued by the Department which authorizes him to receive, possess, use, and transfer radioactive material; and
 - (ii) Any person who holds a specific license issued by the U.S. Nuclear Regulatory Commission which authorizes him to receive, possess, use, and transfer special nuclear material.
2. A general license is hereby issued to own, receive, possess, use, and transfer plutonium in the form of calibration or reference sources in accordance with the provisions of (6)(f)4. and 5. to any person who holds a specific license issued by the Department which authorizes him to receive, possess, use, and transfer radioactive material.
3. A general license is hereby issued to own, receive, possess, use, and transfer radium-226 in the form of calibration or reference sources in accordance with the provisions of (6)(f)4. and 5. to any person who holds a specific license issued by the Department which authorizes him to receive, possess, use, and transfer radioactive material.
4. The general licenses in (6)(f)1., 2., and 3. apply only to calibration or reference sources which have been manufactured in accordance with the specifications contained in a specific license issued to the manufacturer or importer of the sources by the U.S. Nuclear Regulatory Commission pursuant to Section 32.57 of 10 CFR, Part 32, or Section 70.39 of 10 CFR, Part 70, or which have been manufactured in accordance with the specifications contained in a specific license issued to the manufacturer by the Department, any Agreement State, or Licensing State pursuant to licensing requirements equivalent to those contained in Section 32.57 of 10 CFR, Part 32, or Section 70.39 of 10 CFR, Part 70, of the regulations of the U.S. Nuclear Regulatory Commission.

Rule .02(6)(f)5.

5. The general licenses provided in (6)(f)1., 2., and 3. are subject to the provisions of paragraphs (13), (18), and (19) of this Rule, of paragraphs (4), (5), (6), (7), (8), (9) and (10) of Rule .01, and of Rules .03, .06, and .07 of this Chapter. In addition, persons who own, receive, acquire, possess, use, or transfer one or more calibration or reference sources pursuant to these general licenses:
- (i) Shall not possess at any one time, at any one location of storage or use, more than 5 five microcuries (185 kBq) of americium-241, 5 five microcuries (185 kBq) of plutonium, or 5 five microcuries (185 kBq) of radium-226 in such sources;
 - (ii) Shall not receive, possess, use, or transfer such source unless the source, or the storage container, bears a label which includes one of the following statements, as appropriate, or a substantially similar statement which contains the information called for in one of the following statements, as appropriate:
 - (I) The receipt, possession, use, and transfer of this source, Model _____, Serial No. _____, are subject to a general license and the regulations of the U.S. Nuclear Regulatory Commission or of a State with which the U.S. Nuclear Regulatory Commission has entered into an agreement for the exercise of regulatory authority. Do not remove this label.

CAUTION - RADIOACTIVE MATERIAL -
THIS SOURCE CONTAINS (AMERICIUM-241)*
(PLUTONIUM)*. DO NOT TOUCH RADIOACTIVE PORTION OF THIS
SOURCE.

(NAME OF MANUFACTURER OR IMPORTER)

*Note: Showing only the name of the appropriate material, i.e., either plutonium or americium.

Rule .02(6)(f)(5)(ii)(II)

- (II) The receipt, possession, use, and transfer of this source, Model _____, Serial No. _____, are subject to a general license and the regulations of a Licensing State. Do not remove this label.

CAUTION - RADIOACTIVE MATERIAL -
THIS SOURCE CONTAINS RADIUM-226.
DO NOT TOUCH RADIOACTIVE PORTION OF THIS SOURCE.

(NAME OF MANUFACTURER OR IMPORTER)

- (iii) Shall not transfer, abandon, or dispose of such source except by transfer to a person authorized by a license from the Department, the U.S. Nuclear Regulatory Commission, an Agreement State, or a Licensing State to receive the source;
- (iv) Shall store such source, except when the source is being used, in a closed container adequately designed and constructed to contain americium-241, plutonium, or radium-226 which might otherwise escape during storage; and
- (v) Shall not use such source for any purpose other than the calibration of radiation detectors or the standardization of other sources.
6. These general licenses do not authorize the manufacture of calibration or reference sources containing americium-241, plutonium, or radium-226.
- (g) General License for Use of Radioactive Material for Certain In Vitro Clinical or Laboratory Testing.

Note: The new drug provisions of the Federal Food, Drug, and Cosmetic Act also govern the availability and use of any specified diagnostic drugs in interstate commerce.

Rule .02(6)(g)1.

1. A general license is hereby issued to any physician, veterinarian in the practice of veterinary medicine, clinical laboratory, or hospital to receive, acquire, possess, transfer, or use, for any of the following radioactive material, in accordance with the provisions of (6)(g) 2., 3., 4., 5., and 6., the following radioactive materials in prepackaged units for use in in vitro clinical or laboratory tests not involving internal or external administration of radioactive material, or the radiation therefrom, to human beings or animals:
 - (i) Iodine-125, in units not exceeding 40 ten microcuries (370 kBq) each.
 - (ii) Iodine-131, in units not exceeding 40 ten microcuries (370 kBq) each.
 - (iii) Carbon-14, in units not exceeding 40 ten microcuries (370 kBq) each.
 - (iv) Hydrogen-3 (tritium), in units not exceeding 50 microcuries (1.85 MBq) each.
 - (v) Iron-59, in units not exceeding 20 microcuries (740 kBq) each.
 - (vi) Cobalt-57, in units not exceeding 40 ten microcuries (370 kBq) each.
 - (vii) Selenium-75, in units not exceeding 40 ten microcuries (370 kBq) each.
 - (viii) Mock Iodine-125 reference or calibration sources, in units not exceeding 0.05 microcurie (1.85 kBq) of iodine-129 and 0.005 microcurie (185 Bq) of americium-241 each.
2. No person shall receive, acquire, possess, use, or transfer radioactive material pursuant to the general license established by (6)(g)1. until he has filed Department form, "Certificate -In Vitro Testing with Radioactive Material Under General License" with the Department and received from the Department a validated copy of this form with certification number assigned or until he has been authorized pursuant to (9)(d)(e)3. to use radioactive material under the general license in (6)(g). The physician, veterinarian in the practice of veterinary medicine, clinical laboratory, or hospital shall

furnish on the form the following information and such other information as may be required by that form:

Rule .02(6)(g)2.(i)

- (i) Name and address of the physician, veterinarian in the practice of veterinary medicine, clinical laboratory, or hospital;
 - (ii) The location of use; and
 - (iii) A statement that the physician, veterinarian in the practice of veterinary medicine, clinical laboratory, or hospital has appropriate radiation measuring instruments to carry out in vitro clinical or laboratory tests with radioactive material as authorized under the general license in (6)(g)1. and that such tests will be performed only by personnel competent in the use of such instruments and in the handling of the radioactive material.
3. A person who receives, acquires, possesses, or uses radioactive material pursuant to the general license established by (6)(g)1. shall comply with the following:
- (i) The general licensee shall not possess at any one time, pursuant to the general license in (6)(g)1., at any one location of storage or use, a total amount of iodine-125, iodine-131, selenium-75, iron-59, and/or cobalt-57 in excess of 200 microcuries (7.4 MBq).
 - (ii) The general licensee shall store the radioactive material, until used, in the original shipping container or in a container providing the equivalent amount of radiation protection.
 - (iii) The general licensee shall use the radioactive material only as authorized by (6)(g)1.
 - (iv) The general licensee shall not transfer the radioactive material to a person who is not authorized to receive it pursuant to a license issued by the Department, the U.S. Nuclear Regulatory Commission, any Agreement State, or Licensing State, nor transfer the radioactive material in any manner other than in the unopened, labeled shipping container as received from the supplier.

Rule .02(6)(g)3.(v)

- (v) The general licensee shall dispose of the Mock Iodine-125 reference or calibration sources described in (6)(g)1.(viii) as required by Rule .03(1213) of this Chapter.
4. The general licensee shall not receive, acquire, possess, or use radioactive material pursuant to (6)(g)1.:
- (i) Except as prepackaged units which are labeled in accordance with the provisions of an applicable specific license issued pursuant to (11)(g) or in accordance with the provisions of a specific license issued by the U.S. Nuclear Regulatory Commission, any Agreement State, or Licensing State which authorizes the manufacture and distribution of iodine-125, iodine-131, carbon-14, hydrogen-3 (tritium), iron-59, selenium-75, cobalt-57, or Mock Iodine-125 to persons generally licensed under (6)(g) or its equivalent, and
 - (ii) Unless one of the following statements, as appropriate, or a statement which contains the information called for in one of the following statements, appears on a label affixed to each prepackaged unit or appears in a leaflet or brochure which accompanies the package:
 - (I) This radioactive material shall be received, acquired, possessed, and used only by physicians, veterinarians in the practice of veterinary medicine, clinical laboratories, or hospitals and only for in vitro clinical or laboratory tests not involving internal or external administration of the material, or the radiation therefrom, to human beings or animals. Its receipt, acquisition, possession, use, and transfer are subject to the regulations and a general license of the U.S. Nuclear Regulatory Commission or of a State with which the Commission has entered into an agreement for the exercise of regulatory authority.

(NAME OF MANUFACTURER)

Rule .02(6)(g)4.(ii)(II)

- (II) This radioactive material shall be received, acquired, possessed, and used only by physicians, veterinarians in the practice of veterinary medicine, clinical laboratories, or hospitals and only for in vitro clinical or laboratory tests not involving internal or external administration of the material, or the radiation therefrom, to human beings or animals. Its receipt, acquisition, possession, use, and transfer are subject to the regulations and a general license of a Licensing State.

(NAME OF MANUFACTURER)

5. The physician, veterinarian in the practice of veterinary medicine, clinical laboratory, or hospital possessing or using radioactive material under the general license of (6)(g)1. shall report in writing to the Department any changes in the information furnished by him in the "Certificate - In Vitro Testing with Radioactive Material Under General License". The report shall be furnished within 30 days after the effective date of such change.
6. Any person using radioactive material pursuant to the general license of (6)(g)1. is exempt from the requirements of Rules .03 and .07 of this Chapter with respect to radioactive material covered by that general license, except that such persons using the Mock Iodine-125 described in (6)(g)1.(viii) shall comply with the provisions of (1213) and (1415) of Rule .03 of this Chapter.

(7) Filing Application for Specific Licenses.

- (a) Applications for specific licenses shall be filed on forms supplied by the Georgia Department of Natural Resources, Radioactive Materials Program, 4244 International Parkway, Suite 114, Atlanta, Georgia, 30354, or current mailing address. The application shall set forth all applicable information called for by the form.
- (b) The Department may at any time after the filing of the original application, and before the expiration of the license, require further statements in order to enable the Department to determine whether the application should be granted or denied or whether a license should be modified or revoked.
- (c) Each application shall be signed by the applicant or person duly authorized to act for and on his behalf.

Rule .02(7)(d)

- (d) An application for a license may include a request for a license authorizing one or more activities.
- (e) In his application, the applicant may incorporate, by reference, information contained in previous applications, statements, or reports filed with the Department, provided that such references are clear and specific by page, paragraph, and date.
- (f) Applications and documents submitted to the Department may be made available for public inspection except those documents described in Rule .01 (5)(c) which may be withheld from public inspection or discovery.
- (g) The Department may verify information contained in applications and secure additional information deemed necessary to make a reasonable determination as to whether to issue a license and whether special conditions should be attached thereto by visiting the facility or location where radioactive materials would be possessed, or used, and by discussing details of proposed possession or use of the radioactive materials with the applicant or the applicant's designated representatives.
- (h) Emergency Plan for Large Quantity Users.
 - 1. Each application to possess radioactive materials in unsealed form, on foils or plated sources, or sealed in glass in excess of the quantities specified in (21)(e), Schedule E, must contain either:
 - (i) An evaluation showing that the maximum dose to a person offsite due to a release of radioactive materials would not exceed 4 one rem (.01 Sv) effective dose equivalent or 5 five rems (.05 Sv) to the thyroid; or
 - (ii) An emergency plan for responding to a release of radioactive material.
 - 2. One or more of the following factors may be used to support an evaluation submitted under (7)(h)1.(i):
 - (i) The radioactive material is physically separated so that only a portion could be involved in an accident;
 - (ii) All or part of the radioactive material is not subject to release during an accident because of the way it is stored or packaged;

Rule .02(7)(h)2.(iii)

- (iii) The release fraction in the respirable size range would be lower than the release fraction shown in (21)(e), Schedule E, due to the chemical or physical form of the material;
 - (iv) The solubility of the radioactive material would reduce the dose received;
 - (v) Facility design or engineered safety features in the facility would cause the release fraction to be lower than shown in (21)(e), Schedule E;
 - (vi) Operating restrictions or procedures would prevent a release fraction as large as that shown in (21)(e), Schedule E; or
 - (vii) Other factors appropriate for the specific facility.
3. An emergency plan for responding to a release of radioactive material submitted under (7)(h)1.(ii) must include the following information:
- (i) Facility description - a brief description of the licensee's facility and the area near the site.
 - (ii) Types of accidents - an identification of each type of radioactive materials accident for which protective actions may be needed.
 - (iii) Classification of accidents - a classification system for classifying accidents as alerts or site area emergencies.
 - (iv) Detection of accidents - identification of the means of detecting each type of accident in a timely manner.
 - (v) Mitigation of consequences - a brief description of the means and equipment for mitigating the consequences of each type of accident, including those provided to protect workers on site, and a description of the program for maintaining the equipment.
 - (vi) Assessment of releases - a brief description of the methods and equipment to assess releases of radioactive materials.

Rule .02(7)(h)3.(vii)

- (vii) Responsibilities - a brief description of the responsibilities of licensee personnel should an accident occur, including identification of personnel responsible for promptly notifying offsite response organizations and the Department; also responsibilities for developing, maintaining, and updating the plan.
- (viii) Notification and coordination - a commitment to and a brief description of the means to promptly notify offsite response organizations and request offsite assistance, including medical assistance for the treatment of contaminated injured onsite workers when appropriate. A control point must be established to prevent spreading of contamination during recovery activities. The notification and coordination must be planned so that unavailability of some personnel, parts of the facility, and some equipment will not prevent the notification and coordination. The licensee shall also commit to notify the Department immediately after notification of the appropriate offsite response organizations and not later than one hour after the licensee declares an emergency.

Note: This Chapter does not supersede or release licensees from complying with the requirements under the Emergency Planning and Community Right-to-Know Act of 1986, Title III, Pub. L-99-499 or other State or Federal reporting requirements.

- (ix) Information to be communicated - a brief description of the types of information on facility status, radioactive releases, and recommended protective actions, if necessary, to be given to offsite response organizations and to the Department.
- (x) Training - a brief description of the frequency, performance objectives, and plans for the training that the licensee will provide workers on how to respond to an emergency, including any special instruction and orientation tours the licensee would offer to fire, police, medical, and other emergency personnel. The training shall familiarize personnel with site-specific emergency procedures. Also, the training shall thoroughly prepare site personnel for their responsibilities in the event of

Rule .02(7)(h)3.(x)

accident scenarios postulated as most probable for the specific site, including the use of team training for such scenarios.

- (xi) Safe shutdown - a brief description of the means of restoring the facility to a safe condition after an accident.
 - (xii) Exercises - provisions for conducting quarterly communications checks with offsite response organizations and biennial onsite exercises to test response to simulated emergencies. Quarterly communications checks with offsite response organizations must include the check and update of all necessary telephone numbers. The licensee shall invite offsite response organizations to participate in the biennial exercises. Participation of offsite response organizations in biennial exercises, although recommended, is not required. Exercises must use accident scenarios postulated as most probable for the specific site, and the scenarios shall not be known to most exercise participants. The licensee shall critique each exercise using individuals not having direct implementation responsibility for the plan. Critiques of exercises must evaluate the appropriateness of the plan, emergency procedures, facilities, equipment, training of personnel, and the overall effectiveness of the response. These exercises must be documented and deficiencies found by the critiques must be corrected.
 - (xiii) Hazardous chemicals - a certification that the applicant has met its responsibilities under the Emergency Planning and Community Right-to-Know Act of 1986, Title III, Pub. L.99-499, if applicable to the applicant's activities at the proposed place of use of the radioactive material.
4. The licensee shall allow the offsite response organizations expected to respond in case of an accident 60 days to comment on the licensee's emergency plan before submitting it to the Department. The licensee shall provide any comments received within the 60 days to the Department with the emergency plan.

Rule .02(7)(i)

- (i) An application for a specific license to use radioactive material in the form of a sealed source or in a device that contains the sealed source must either:
 - 1. Identify the source or device by manufacturer and model number as registered with the Department under (11)(l); or
 - 2. Contain the information identified in (11)(l)6.

- (8) General Requirements for the Issuance of Specific Licenses. A license application will be approved if the Department determines the following:
 - (a) That the applicant is qualified by reason of training and experience to use the material in question for the purpose requested in accordance with this Chapter in such a manner as to minimize danger to public health and safety or property;
 - (b) That the applicant's proposed equipment, facilities, and procedures are adequate to minimize danger to public health and safety or property;
 - (c) That the issuance of the license will not be inimical to the health and safety of the public; and
 - (d) That the applicant satisfies any applicable special requirements in (9), (10), and (11).
 - (e) Bonding Requirements.
 - 1. Pursuant to Georgia Laws 1979, pp. 1059, 1060, a specific license will be issued to a Major Processor as defined in Rule .01(2)(ggg) of this Chapter only if the applicant has posted a surety bond with, and made payable to, the Commissioner, Department of Natural Resources, to ensure the protection of the public health and safety in the event of abandonment, insolvency, or other inability of the licensee to meet the requirements of the Act and this Chapter.
 - (i) The bond provided shall be not less than \$100,000.00, nor more than \$5,000,000.00.

Rule .02(8)(e)1.(ii)

- (ii) The exact amount of the bond shall be determined by the Director, Environmental Protection Division, and shall be based on the probable extent of contamination, the amount of possible property damage, the costs of removal and disposal of sources of radiation used by the licensee, and the costs of reclamation of the property in the event of abandonment, insolvency, or other inability of the licensee to perform such services to the satisfaction of the Department.
- 2. Persons licensed at the time the bonding requirements of this Chapter became effective, and upon notice by the Department, must, within a period of 90 days following such notice, provide the bond required by (8)(e)1. as a condition for continuation of the license.
- (f) Environmental Report, Commencement of Construction. In the case of an application for a license to receive and possess radioactive material for the conduct of any activity which the Department determines will significantly affect the quality of the environment, commencement of construction of the plant or facility in which the activity will be conducted shall not begin until the Department has concluded, after weighing the environmental, economic, technical, and other benefits against environmental costs and considering available alternatives, that the action called for is the issuance of the proposed license, with any appropriate conditions to protect environmental values. Commencement of construction prior to such conclusion shall be grounds for denial of a license to receive and possess radioactive material in such plant or facility. As used in this paragraph, the term "commencement of construction" means any clearing of land, excavation, or other substantial action that would adversely affect the environment of a site. The term does not mean site exploration, necessary borings to determine foundation conditions, or other preconstruction monitoring or testing to establish background information related to the suitability of the site or the protection of environmental values.
- (g) Financial assurance and record-keeping for decommissioning.
 - 1. Each applicant for a specific license authorizing the possession and use of unsealed radioactive material of half-life greater than 120 days and in quantities exceeding 10^5 times the applicable quantities set forth in Schedule F shall submit a decommissioning funding plan as described in (8)(g)5. The decommissioning funding plan must also be submitted when a combination of isotopes is

involved if R divided

Rule .02(8)(g)1.

by 10^5 is greater than 1 (unity Rule), where R is defined here as the sum of the ratios of the quantity of each isotope to the applicable value in Schedule F.

2. Each applicant for a specific license authorizing the possession and use of radioactive material of half-life greater than 120 days and in quantities specified in (8)(g)4. shall either:
 - (i) Submit a decommissioning funding plan as described in (8)(g)5.; or
 - (ii) Submit a certification that financial assurance for decommissioning has been provided in the amount prescribed by (8)(g)4. using one of the methods described in (8)(g)6. For an applicant, this certification may state that the appropriate assurance will be obtained after the application has been approved and the license issued but prior to the receipt of licensed material. As part of the certification, a copy of the financial instrument obtained to satisfy the requirements of (8)(g)6. is to be submitted to the Department. If the applicant defers execution of the financial instrument until after the license has been issued, a signed original of the financial instrument obtained to satisfy the requirements (8)(g)6. must be submitted to the Department before the receipt of licensed material. If the applicant does not defer execution of the financial instrument, the applicant shall submit to the Department, as part of the certification a signed original of the financial instrument obtained to satisfy the requirements of (8)(g)6.

Rule .02(8)(g)3.

- 3. (i) Each holder of a specific license issued on or after January 1, 1993, which is of a type described in (8)(g)1. or 2. shall provide financial assurance for decommissioning in accordance with the criteria set forth in this Rule.
- (ii) Each holder of a specific license issued before January 1, 1993, which is of a type described in (8)(g)1. shall submit, on or before January 1, 1993, a decommissioning funding plan or a certification of financial assurance for decommissioning in an amount at least equal to \$750,000 in accordance with the criteria set forth in this Rule. If the licensee submits the certification of financial assurance rather than a decommissioning funding plan at this time, the licensee shall include a decommissioning funding plan in any application for license renewal.
- (iii) Each holder of a specific license issued before January 1, 1993, and of a type described in (8)(g)2. shall submit, on or before January 1, 1993, a certification of financial assurance for decommissioning or a decommissioning funding plan in accordance with the criteria set forth in this section.
- 4. Table of required amounts of financial assurance for decommissioning by quantity of material.

Greater than 10^4 but less than or equal to 10^5 times the applicable quantities of Schedule F in unsealed form. (For a combination of isotopes, if R, as defined in (8)(g), divided by 10^4 is greater than 1 but R divided by 10^5 is less than or equal to 1).....\$750,000

Greater than 10^3 but less than or equal to 10^4 times the applicable quantities of Schedule F in unsealed form. (For a combination of isotopes, if R, as defined in (8)(g), divided by 10^3 is greater than 1 but R divided by 10^4 is less than or equal to 1).....\$150,000

Greater than 10^{10} times the applicable quantities of Schedule F in sealed sources or plated foils. (For a combination of isotopes, if R, as defined in (8)(g), divided by 10^{10} is greater than 1).....\$75,000

Rule .02(8)(g)5.

5. Each decommissioning funding plan must contain a cost estimate for decommissioning and a method of assuring funds for decommissioning from (8)(g)6., including means of adjusting cost estimates and associated funding levels periodically over the life of the facility.
6. Financial assurance for decommissioning must be provided by one or more of the following methods:
 - (i) Prepayment. Prepayment is the deposit prior to the start of operation into an account segregated from licensee assets and outside the licensee's administrative control of cash or liquid assets such that the amount of funds would be sufficient to pay decommissioning costs. Prepayment may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities.
 - (ii) A surety method, insurance, or other guarantee method. These methods guarantee that decommissioning costs will be paid ~~should the licensee default~~. A surety method may be in the form of a surety bond, letter of credit, or line of credit. A parent company guarantee of funds for decommissioning costs based on a financial test may be used if the guarantee and test are as contained in (21)(d) Schedule D. A parent company guarantee may not be used in combination with other financial methods to satisfy the requirements of this section. ~~A~~ For commercial corporations that issue bonds, a guarantee of funds by the applicant or licensee for decommissioning costs based on a financial test may be used if the guarantee and test are as contained in (21)(g) Schedule G. ~~A guarantee by the applicant or licensee may~~ For commercial companies that do not be used in combination with any other financial methods to satisfy the requirements of this rule or in any situation where the applicant or licensee has issue bonds, a parent company holding majority control of the voting stock of the company. Any surety method or insurance used to provide financial assurance ~~guarantee of funds by the applicant or licensee for decommissioning must contain the following conditions:~~ costs may be used if the guarantee and test are as contained in (21)(d) Schedule D. For nonprofit entities, such as colleges, universities, and nonprofit hospitals, a guarantee of funds by the applicant or licensee may be used if the guarantee and test are as contained in (21)(e) Schedule E. A guarantee by the applicant or licensee may not be used in combination with any other financial

Rule .02(8)(g)6.(ii)

methods used to satisfy the requirements of this section or in any situation where the applicant or licensee has a parent company holding majority control of the voting stock of the company. Any surety method or insurance used to provide financial assurance for decommissioning must contain the following conditions:

- (I) The surety method or insurance must be open-ended or, if written for a specified term, such as 5 five years, must be renewed automatically, unless 90 days or more prior to the renewal date the issuer notifies the Department, the beneficiary, and the licensee of its intention not to renew. The surety method or insurance must also provide that the full face amount be paid to the beneficiary automatically prior to the expiration without proof of forfeiture if the licensee fails to provide a replacement acceptable to the Department within 30 days after receipt of notification of cancellation.
 - (II) The surety method or insurance must be payable to a trust established for decommissioning costs. The trustee and trust must be acceptable to the Department. An acceptable trustee includes an appropriate State or Federal government agency or an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency.
 - (III) The surety method or insurance must remain in effect until the Department has terminated the license.
- (iii) An external sinking fund in which deposits are made at least annually, coupled with a surety method or insurance, the value of which may decrease by the amount being accumulated in the sinking fund. An external sinking fund is a fund established and maintained by setting aside funds periodically in an account segregated from licensee assets and outside the licensee's administrative control in which the total amount of funds would be sufficient to pay decommissioning costs at

the time termination of operation is expected. An external sinking fund may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities. The surety or insurance provisions must be as stated in (8)(g)2.

Rule .02(8)(g)6.(iv)

- (iv) In the case of Federal, State, or local government licensees, a statement of intent containing a cost estimate for decommissioning or an amount based on the Table in (8)(g)4., and indicating that funds for decommissioning will be obtained when necessary.
- 7. Each person licensed under this Chapter shall keep records of information important to the safe and effective decommissioning of the facility in an identified location until the ~~license is terminated~~ site is released for unrestricted use by the Department. Before licensed activities are transferred or assigned in accordance with .02(13)(b), licensees shall transfer all records described in (7)(i) of this rule to the new licensee. In this case, the new licensee will be responsible for maintaining these records until the license is terminated. If records of relevant information to the decommissioning of a facility are kept for other purposes, references to these records and their locations may be used. Information the Department considers important to decommissioning consists of:
 - (i) Records of spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment, or site. These records may be limited to instances when contamination remains after any cleanup procedures or when there is reasonable likelihood that contaminants may have spread to inaccessible areas as in the case of possible seepage into porous materials such as concrete. These records must include any known information on identification of involved nuclides, quantities, forms, and concentrations.
 - (ii) As-built drawings and modifications of structures and equipment in restricted areas where radioactive materials are used and/or stored, and of locations of possible inaccessible contamination such as buried pipes which may be subject to contamination. If required drawings are referenced, each Rule relevant document need not be indexed individually. If drawings are not available, the licensee shall substitute appropriate records of available information concerning

these areas and locations.

- (iii) Except for areas containing only sealed sources (provided the sources have not leaked or no contamination remains after any leak) or radioactive materials having only half-lives of less than 65 days, or depleted uranium used only for shielding or as penetrators in unused munitions, a list contained in a single document and updated every 2 two years, of the following:

Rule .02(8)(g)7.(ii)(I)

- (I) All areas designated and formerly designated as restricted areas as defined under Rule 391-3-17-.01(2)(III) of this Chapter;
 - (II) All areas outside of restricted areas that require documentation under (8)(g)7.(i);
 - (III) All areas outside of restricted areas where current and previous wastes have been buried as documented under Rule .03(4314)(i) of this Chapter; and
 - (IV) All areas outside of restricted areas which contain materials such that, if the license expired, the licensee would be required to either decontaminate the area to unrestricted release levels or apply for approval for disposal under Rule .03(4213)(b) of this Chapter.
- (iv) Records of the cost estimate performed for the decommissioning funding plan or of the amount certified for decommissioning, and records of the funding method used for assuring funds if either a funding plan or certification is used.
8. Teletherapy licensees are exempted from decommissioning financial assurance requirements for possession of licensed material in sealed sources in quantities greater than 10^{10} times the applicable quantities of Schedule F of this rule, for the purpose of source changes only. This exemption is granted for no more than 30 days for any one source change.
- (h) Expiration and termination of licenses and decommissioning of sites and

separate buildings or outdoor areas.

1. Each specific license continues in effect, beyond the expiration date if necessary, with respect to possession of radioactive material until the Department notifies the licensee in writing that the license is terminated. During this time, the licensee shall:
 - (i) Limit actions involving radioactive material to those related to decommissioning; and
 - (ii) Continue to control entry to restricted areas until they are suitable for release in accordance with Department requirements.
2. Within 60 days of the occurrence of any of the following, each

Rule .02(8)(h)2.

licensee shall provide notification to the Department in writing of such occurrence, and either begin decommissioning its site, or any separate building or outdoor area that contains residual radioactivity so that the building or outdoor area is suitable for release in accordance with Department requirements, or submit within 12 months of notification a decommissioning plan, if required by (8)(h)5.(i), and begin decommissioning upon approval of that plan if:

- (i) The license has expired pursuant to (14) or (18)(c); or
 - (ii) The licensee has decided to permanently cease principal activities, as defined in this part, at the entire site or in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with Department requirements; or
 - (iii) No principal activities under the license have been conducted for a period of 24 months; or
 - (iv) No principal activities have been conducted for a period of 24 months in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with Department requirements.
3. Coincident with the notification required by (8)(h)2., the licensee shall maintain in effect all decommissioning financial assurances established by the licensee pursuant to (8)(g) in conjunction with a license issuance or renewal or as required by this section. The

amount of the financial assurance must be increased or may be decreased, as appropriate, to cover the detailed cost estimate for decommissioning established pursuant to (8)(h)5.(iv)(V).

- (i) Any licensee who has not provided financial assurance to cover the detailed cost estimate submitted with the decommissioning plan shall do so when this rule becomes effective.
- (ii) Following approval of the decommissioning plan, a licensee may reduce the amount of the financial assurance as decommissioning proceeds and radiological contamination is reduced at the site with the approval of the Department.

Rule .02(8)(h)4.

- 4. The Department may grant a request to extend the time periods in (8)(h)2. if the Department determines that this relief is not detrimental to the public health and safety and is otherwise in the public interest. The request must be submitted no later than 30 days before notification pursuant to (8)(h)2. The schedule for decommissioning set forth in (8)(h)2. may not commence until the Department has made a determination on the request.
- 5. (i) A decommissioning plan must be submitted if required by license condition or if the procedures and activities necessary to carry out decommissioning of the site or separate building or outdoor area have not been previously approved by the Department and these procedures could increase potential health and safety impacts to workers or to the public, such as in any of the following cases:
 - (I) Procedures would involve techniques not applied routinely during cleanup or maintenance operations;
 - (II) Workers would be entering areas not normally occupied where surface contamination and radiation levels are significantly higher than routinely encountered during operation;
 - (III) Procedures could result in significantly greater airborne concentrations of radioactive materials than

are present during operation or;

(IV) Procedures could result in significantly greater releases of radioactive material to the environment than those associated with operation.

(ii) The Department may approve an alternate schedule for submittal of a decommissioning plan required pursuant to (8)(h)2. if the Department determines that the alternative schedule is necessary to the effective conduct of decommissioning operations and presents no undue risk from radiation to the public health and safety and is otherwise in the public interest.

(iii) Procedures such as those listed in (8)(h)5.(i) with potential health and safety impacts may not be carried out prior to approval of the decommissioning plan.

Rule .02(8)(h)5.(iv)

(iv) The proposed decommissioning plan for the site or separate building or outdoor area must include:

(I) A description of the conditions of the site or separate building or outdoor area sufficient to evaluate the acceptability of the plan;

(II) A description of planned decommissioning activities;

(III) A description of methods used to ensure protection of workers and the environment against radiation hazards during decommissioning;

(IV) A description of the planned final radiation survey; and

(V) An updated detailed cost estimate for decommissioning, comparison of that estimate with present funds set aside for decommissioning, and a plan for assuring the availability of adequate funds for completion of decommissioning.

(VI) For decommissioning plans calling for completion of decommissioning later than 24 months after plan approval, the plan shall include a justification for the delay based on the criteria in (8)(h)7.

- (v) The proposed decommissioning plan will be approved by the Department if the information therein demonstrates that the decommissioning will be completed as soon as practicable and that the health and safety of workers and the public will be adequately protected.
- 6.
- (i) Except as provided in (8)(h)7., licensees shall complete decommissioning of the site or separate building or outdoor area as soon as ~~practicable~~ practical but no later than 24 months following the initiation of decommissioning.
 - (ii) Except as provided in (8)(h)7. when decommissioning involves the entire site, the licensee shall request license termination as soon as ~~practicable~~ practical but no later than 24 months following the initiation of decommissioning.
7. The Department may approve a request for an alternative schedule
- Rule .02(8)(h)7.

for completion of decommissioning of the site or separate building or outdoor area, and license termination if appropriate, if the Department determines that the alternative is warranted by consideration for the following:

- (i) Whether it is technically feasible to complete decommissioning within the allotted 24-month period;
- (ii) Whether sufficient waste disposal capacity is available to allow completion of decommissioning within the allotted 24-month period;
- (iii) Whether a significant volume reduction in wastes requiring disposal will be achieved by allowing short-lived radionuclides to decay;
- (iv) Whether a significant reduction in radiation exposure to workers can be achieved by allowing short-lived radionuclides to decay; and
- (v) Other site-specific factors which the Department may consider appropriate on a case-by-case basis, such as the regulatory requirements of other government agencies, lawsuits, ground-water treatment activities, monitored natural ground-water restoration, actions that could result in more environmental harm than deferred cleanup, and other

factors beyond the control of the licensee.

8. As the final step in decommissioning, the licensee shall follow the requirements of Rule .02(18)(d).

(9) Special Requirements for Issuance of Certain Specific Licenses for Radioactive Material.

- (a) **Use of Sealed Sources in Industrial Radiography.** In addition to the requirements set forth in (8), a specific license for the use of sealed sources in industrial radiography will be issued if the licensee meets all of the requirements of Rule .04 of this Chapter.
- (b) **Human Use of Radioactive Materials in Institutions.** In addition to the requirements set forth in (8), a specific license for the human use of radioactive material in an institution will be issued only if the licensee also meets all of the requirements of Rule .05 of this Chapter.

Rule .02(9)(c)

- (c) **Specific Licenses to Individual Physicians for Human Use of Radioactive Material.**

1. An application by an individual physician or group of physicians for a specific license for human use of radioactive material will be approved if:

- (i) The applicant satisfies the general requirements specified in (8), and all of the requirements of Rule .05 of this Chapter;
- (ii) The application is for use in the applicant's practice in an office outside a medical institution;
- (iii) The applicant has access to a hospital possessing adequate facilities to hospitalize and monitor the applicant's radioactive patients whenever it is advisable; and
- (iv) The applicant has extensive experience in the proposed use, the handling and administration of radionuclides, and, where applicable, the clinical management of radioactive patients.

2. The Department will not approve an application by an individual physician or group of physicians for a specific license to receive, possess, or use radioactive material on the premises of a medical institution unless:

- (i) The use of radioactive material is limited to:
 - (I) The administration of radiopharmaceuticals for diagnostic or therapeutic purposes;
 - (II) The performance of diagnostic studies on patients to whom a radiopharmaceutical has been administered;
 - (III) The performance of in vitro diagnostic studies; or
 - (IV) The calibration and quality control checks of radioactive assay instrumentation, radiation safety instrumentation, and diagnostic instrumentation;
- (ii) The physician brings the radioactive material with him and removes the radioactive material when he departs (The institution cannot receive, possess, or store radioactive material other than the amount of material remaining in the patient.); and

Rule .02(9)(c)2(iii)

- (iii) The medical institution does not hold a radioactive material license under (9)(b).
- (d) **Human Use of Sealed Sources Containing Radioactive Material.** In addition to the requirements set forth in (8), a specific license for the human use of sealed sources containing radioactive material will be issued only if the applicant, or, if the application is made by an institution, the individual user is a physician and either:
 - 1. Has specialized training in the therapeutic use of the sealed source considered (teletherapy unit, beta applicator, etc.), or has experience equivalent to such training; or
 - 2. Has specialized training in the diagnostic use of the sealed source considered (bone mineral analyzer, etc.) or has experience equivalent to such training.
- (e) **Specific Licenses for Certain Medical Uses of Radioactive Material.**
 - 1. Subject to the provisions of (9)(e)2. and 3., an application for a specific license pursuant to (9)(b), (c), or (d), for any medical use or uses of radioactive material specified in Rule .05 of this Chapter, will be approved if:
 - (i) The applicant satisfies the requirements of (9)(b), (c), or (d);
 - (ii) The applicant, or the physician designated in the application

as the individual user, has adequate clinical experience in the types of uses specified in the application;

- (iii) The applicant, or the physicians and all other personnel who will be involved in the preparation and use of the radioactive material, has adequate training and experience in the handling of radioactive material appropriate to his participation in the uses specified in the application;
- (iv) The applicant's radiation detection and measuring instrumentation is adequate for conducting the procedures involved in the uses specified in the application;
- (v) The applicant's radiation safety operating procedures are adequate for handling and disposal of the radioactive material involved in the uses specified in the application; and

Rule .02(9)(e)1.(vi)

- (vi) For uses regulated by Rules .05(8) and (9) of this Chapter, any licensee using radioactive material for clinical procedures other than those specified in the product labeling (package insert) shall comply with the product labeling regarding:
 - (I) Chemical and physical form,
 - (II) Route of administration, and
 - (III) Dosage range.

2. Any licensee who is authorized to use radioactive material pursuant to (9)(e) and to Rule .05 of this Chapter is subject to the following conditions:

- (i) For paragraphs (8), (9), and (12) of Rule .05 of this Chapter, no licensee shall receive, possess, or use radioactive material except as a radiopharmaceutical manufactured in the form to be administered to the patient, and labeled, packaged, and distributed in accordance with a specific license issued by the Department pursuant to (11)(i), a specific license issued by the U.S. Nuclear Regulatory Commission pursuant to Section 32.72 of 10 CFR, Part 32, or a specific license issued by an Agreement State or a Licensing State pursuant to equivalent regulations.

- (ii) For Rule 391-3-17-.05(9), no licensee shall receive, possess, or use generators or reagent kits containing radioactive material or shall use reagent kits that do not contain radioactive material to prepare radiopharmaceuticals containing radioactive material, except:
 - (I) Reagent kits not containing radioactive material that are approved by the Department, the U.S. Nuclear Regulatory Commission, an Agreement State, or a Licensing State for use by persons licensed pursuant to (9)(d) and to Rule .05 of this Chapter or

Rule .02(9)(e)2.(ii)(II)

- (II) Generators or reagent kits containing radioactive material that are manufactured, labeled, packaged, and distributed in accordance with a specific license issued by the Department pursuant to ~~(11)(i)~~, a specific license issued by the U.S. Nuclear Regulatory Commission pursuant to Section 32.73 of 10 CFR, Part 32, or a specific license issued by an Agreement State or a Licensing State pursuant to equivalent regulations; and
 - (iii) For Brachytherapy, regulated by Rule .05 of this Chapter, no licensee shall receive, possess, or use radioactive material except as contained in a source or device that has been manufactured, labeled, packaged, and distributed in accordance with a specific license issued by the Department pursuant to ~~(11)(j)~~, a specific license issued by the U.S. Nuclear Regulatory Commission pursuant to Section 32.74 of 10 CFR, Part 32, or a specific license issued to the manufacturer by an Agreement State or a Licensing State pursuant to equivalent regulations.
3. Any licensee who is licensed pursuant to (9) for one or more of the medical uses regulated by Rule .05 of this Chapter also is authorized to use radioactive material under the general license in (6)(g) for in vitro uses without filing the Certificate as required by (6)(g)2, provided that the licensee is subject to the other provisions of (6)(g).
- (f) Use of Naturally-Occurring Radioactive Material (NORM). In addition to the requirements set forth in (8), a specific license for the use of NORM will be issued if the licensee meets all of the requirements of Rule .08 of this Chapter.
 - (g) Use of Sealed Sources in Irradiators. In addition to the requirements set forth in (8), a specific license for the use of sealed sources in large irradiators will be issued if the licensee meets all of the requirements of Rule .09 of this Chapter.

Rule .02(10)

- (10) Special Requirements for Specific Licenses of Broad Scope. These requirements are for the issuance of nonmedical specific licenses of broad scope for radioactive material ("broad licenses") and contain certain regulations governing holders of such licenses. (The issuance of medical specific licenses of broad scope is addressed in (9).)

Note: (See Note, page 2-6)

- (a) The different types of broad scope licenses are set forth below:
1. A "Type A specific license of broad scope" is a specific license authorizing receipt, acquisition, ownership, possession, use, and transfer of any chemical or physical form of the radioactive material specified in the license, but not exceeding quantities specified in the license, for any authorized purpose. The quantities specified are usually in the multicurie range.
 2. A "Type B specific license of broad scope" is a specific license authorizing receipt, acquisition, ownership, possession, use, and transfer of any chemical or physical form of radioactive material specified in (21)(c), Schedule C, for any authorized purpose. The possession limit for a Type B broad license, if only one radionuclide is possessed thereunder, is the quantity specified for that radionuclide in (21)(c), Schedule C, Column I. If two or more radionuclides are possessed thereunder, the possession limit for each is determined as follows: For each radionuclide, determine the ratio of the quantity possessed to the applicable quantity specified in (21)(c), Schedule C, Column I, for that radionuclide.

The sum of the ratios for all radionuclides possessed under the license shall not exceed unity.
 3. A "Type C specific license of broad scope" is a specific license authorizing receipt, acquisition, ownership, possession, use, and transfer of any chemical or physical form of radioactive material specified in (21)(c), Schedule C, for any authorized purpose. The possession limit for a Type C broad license, if only one radionuclide is possessed thereunder, is the quantity specified for that radionuclide in (21)(c), Schedule C, Column II. If two or more radionuclides are possessed thereunder, the possession limit is determined for each as follows: For each radionuclide, determine the ratio of the quantity possessed to the applicable quantity specified in (21)(c), Schedule C, Column II, for that radionuclide.

Rule .02(10)(a)3. The sum of the

ratios for all radionuclides possessed under the license shall not exceed unity.

- (b) An application for a Type A specific license of broad scope will be approved if:
1. The applicant satisfies the general requirements specified in (8);
 2. The applicant has engaged in a reasonable number of activities involving the use of radioactive material; and
 3. The applicant has established administrative controls and provisions relating to organization and management, procedures, record-keeping, material control and accounting, and management review that are necessary to assure safe operations, including:
 - (i) The establishment of a Radiation Safety Committee composed of such persons as a Radiation Safety Officer, a representative of management, and persons trained and experienced in the safe use of radioactive material;
 - (ii) The appointment of a Radiation Safety Officer who is qualified by training and experience in radiation protection, and who is available for advice and assistance on radiation safety matters; and
 - (iii) The establishment of appropriate administrative procedures to assure:
 - (I) Control of procurement and use of radioactive material;
 - (II) Completion of safety evaluations of proposed uses of radioactive material which take into consideration such matters as the adequacy of facilities and equipment, the training and experience of the user, and the operating or handling procedures; and
 - (III) Review, approval, and recording by the Radiation Safety Committee of safety evaluations of proposed uses prepared in accordance with (10)(b)3.(iii)(II) prior to the use of the radioactive material.

Rule .02(10)(c)

- (c) An application for a Type B specific license of broad scope will be approved if:
1. The applicant satisfies the general requirements specified in (8); and
 2. The applicant has established administrative controls and provisions relating to organization and management, procedures, record-keeping, material control and accounting, and management review that are necessary to assure safe operations, including:
 - (i) The appointment of a Radiation Safety Officer who is qualified by training and experience in radiation protection, and who is available for advice and assistance on radiation safety matters, and
 - (ii) The establishment of appropriate administrative procedures to assure:
 - (I) Control of procurement and use of radioactive material,
 - (II) Completion of safety evaluations of proposed uses of radioactive material which take into consideration such matters as the adequacy of facilities and equipment, the training and experience of the user, and the operating or handling procedures, and
 - (III) Review, approval, and recording by the Radiation Safety Officer of safety evaluations of proposed uses prepared in accordance with (10)(c)2.(ii)(II) prior to the use of the radioactive material.
- (d) An application for a Type C specific license of broad scope will be approved if:
1. The applicant satisfies the general requirements specified in (8);
 2. The applicant submits a statement that radioactive material will be used only by, or under the direct supervision of, individuals who have received:
 - (i) A college degree at the bachelor level, or equivalent training

and experience, in the physical or biological sciences or in engineering, and

Rule .02(10)(d)2.(ii)

- (ii) At least 40 hours of training and experience in the safe handling of radioactive material, and in the characteristics of ionizing radiation, units of radiation dose and quantities, radiation detection instrumentation, and biological hazards of exposure to radiation appropriate to the type and forms of radioactive material to be used; and
3. The applicant has established administrative controls and provisions relating to procurement of radioactive material, procedures, record-keeping, material control and accounting, and management review necessary to assure safe operations.
- (e) Specific nonmedical licenses of broad scope are subject to the following conditions:
- 1. Unless specifically authorized, persons licensed pursuant to (10) shall not:
 - (i) Conduct tracer studies in the environment involving direct release of radioactive material;
 - (ii) Receive, acquire, own, possess, use, or transfer devices containing 100,000 Curies (3.7 PBq) or more of radioactive material in sealed sources used for irradiation of materials;
 - (iii) Conduct activities for which a specific license issued by the Department under (9) or (11) is required; or
 - (iv) Add or cause the addition of radioactive material to any food, beverage, cosmetic, drug, or other product designed for ingestion or inhalation by, or application to, a human being.
 - 2. Each Type A specific license of broad scope issued under (10) shall be subject to the condition that radioactive material possessed under the license may only be used by, or under the direct supervision of, individuals approved by the licensee's Radiation Safety Committee.
 - 3. Each Type B specific license of broad scope issued under (10) shall be subject to the condition that radioactive material possessed under the license may only be used by, or under the

direct supervision of, individuals approved by the licensee's Radiation Safety Officer.

4. Each Type C specific license of broad scope issued under (10) shall
Rule .02(10)(e)4.

be subject to the condition that radioactive material possessed under the license may only be used by, or under the direct supervision of, individuals who satisfy the requirements of (10)(d).

(11) Special Requirements for a Specific License to Manufacture, Assemble, Repair, or Distribute Commodities, Products, or Devices which Contain Radioactive Material.

- (a) Licensing the Introduction of Radioactive Material into Products in Exempt Concentrations.

1. In addition to the requirements set forth in (8), a specific license authorizing the introduction of radioactive material into a product or material owned by or in the possession of the licensee or another to be transferred to persons exempt under (3)(a)1. will be issued only if:

(i) The applicant submits a description of the product or material into which the radioactive material will be introduced, intended use of the radioactive material and the product or material into which it is introduced, method of introduction, initial concentration of the radioactive material in the product or material, control methods to assure that no more than the specified concentration is introduced into the product or material, estimated time interval between introduction and transfer of the product or material, and estimated concentration of the radioactive material in the product or material at the time of transfer; and

(ii) The applicant provides reasonable assurance that the concentrations of radioactive material at the time of transfer will not exceed the concentrations in (21)(a), Schedule A, that reconcentration of the radioactive material in concentrations exceeding those in (21)(a), Schedule A, is not likely, that use of lower concentrations is not feasible, and that the product or material is not likely to be incorporated in any food, beverage, cosmetic, drug, or other commodity or product designed for ingestion or inhalation

by, or application to, a human being.

2. Each person licensed under (11)(a) shall file an annual report with the Department which shall identify the type and quantity of each product or material into which radioactive material has been introduced during the reporting period; name and address of the person who owned or possessed the product or material, into which radioactive material has been introduced, at the time of introduction;

Rule .02(11)(a)2.

the type and quantity of radionuclide introduced into each such product or material; and the initial concentrations of the radionuclide in the product or material at the time of transfer of the radioactive material by the licensee. If no transfers of radioactive material have been made pursuant to (11)(a) during the reporting period, the report shall so indicate. The report shall cover the year ending June 30, and shall be filed within 30 days thereafter.

- (b) Licensing the Distribution of Naturally-Occurring and Accelerator-Produced Radioactive Material (NARM) in Exempt Quantities.

Note: (See Note, page 2-6)

1. An application for a specific license to distribute NARM to persons exempted from this Chapter pursuant to (3)(b) will be approved if:
 - (i) The radioactive material is not contained in any food, beverage, cosmetic, drug, or other commodity designed for ingestion or inhalation by, or application to, a human being;
 - (ii) The radioactive material is in the form of processed chemical elements, compounds, mixtures, tissue samples, bioassay samples, counting standards, plated or encapsulated sources, or similar substances identified as radioactive and to be used for its radioactive properties, but is not incorporated into any manufactured or assembled commodity, product, or device intended for commercial distribution; and
 - (iii) The applicant submits copies of prototype labels and brochures and the Department approves such labels and brochures.
2. The license issued under (11)(b)1. is subject to the following conditions:

- (i) No more than 10 ten exempt quantities shall be sold or transferred in any single transaction. However, an exempt quantity may be composed of fractional parts of one or more of the exempt quantities provided the sum of the fractions shall not exceed unity.
- (ii) Each exempt quantity shall be separately and individually packaged. No more than 10 ten such packaged exempt quantities

Rule .02(11)(b)2.(ii)

shall be contained in any outer package for transfer to persons exempt pursuant to (3)(b). The outer package shall be such that the dose rate at the external surface of the package does not exceed 0.5 millirem (5 μ Sv) per hour.

- (iii) The immediate container of each quantity or separately-packaged fractional quantity of radioactive material shall bear a durable and legible label which:
 - (I) Identifies the radionuclide and the quantity of radioactivity, and
 - (II) Bears the words "Radioactive Material".
 - (iv) In addition to the labeling information required by (11)(b)2.(iii), the label affixed to the immediate container, or an accompanying brochure, shall:
 - (I) State that the contents are exempt from Licensing State requirements,
 - (II) Bear the words "Radioactive Material - Not for Human Use - Introduction into Foods, Beverages, Cosmetics, Drugs, or Medicinals, or into Products Manufactured for Commercial Distribution is Prohibited - Exempt Quantities Should Not Be Combined", and
 - (III) Set forth appropriate additional radiation safety precautions and instructions relating to the handling, use, storage, and disposal of the radioactive material.
3. Each person licensed under (11)(b) shall maintain records

identifying, by name and address, each person to whom radioactive material is transferred for use under (3)(b) or the equivalent regulations of a Licensing State, and stating the kinds and quantities of radioactive material transferred. An annual summary report stating the total quantity of each radionuclide transferred under the specific license shall be filed with the Department. Each report shall cover the year ending June 30, and shall be filed within 30 days thereafter. If no transfers of radioactive material have been made pursuant to (11)(b) during the reporting period, the report shall so indicate.

Rule .02(11)(c)

- (c) Licensing the Incorporation of Naturally-Occurring and Accelerator-Produced Radioactive Material (NARM) into Gas and Aerosol Detectors. An application for a specific license authorizing the incorporation of NARM into gas and aerosol detectors to be distributed to persons exempt under (3)(c)3. will be approved if the application satisfies requirements equivalent to those contained in Section 32.26 of 10 CFR, Part 32. The maximum quantity of radium-226 in each device shall not exceed 0.1 microcurie (3.7 kBq).
- (d) Licensing the Manufacture and Distribution of Devices to Persons Generally Licensed Under (6)(c).
 - 1. An application for a specific license to manufacture or distribute devices containing radioactive material to persons generally licensed under (6)(c) or equivalent regulations of the U.S. Nuclear Regulatory Commission, an Agreement State, or a Licensing State will be approved if:
 - (i) The applicant satisfies the general requirements of (8);
 - (ii) The applicant submits sufficient information relating to the design, manufacture, prototype testing, quality control, labels, proposed uses, installation, servicing, leak testing, operating and safety instructions, and potential hazards of the device to provide reasonable assurance that:
 - (I) The device can be safely operated by persons not having training in radiological protection,
 - (II) 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 it is unlikely that any

person will receive in any period of ~~4~~ one year a dose in excess of ~~10~~ ten percent of the annual limits specified in Rule .03(5)(a)1. of this Chapter, and

- (III) Under accident conditions (such as fire and explosion) associated with handling, storage, and use of the device, it is unlikely that any person would receive an external radiation dose or dose commitment in excess of the following organ doses:

Rule .02(11)(d)1.(ii)(III)l.

- I. Whole body; head and trunk; active blood-forming organs; gonads; or lens of eye.....15 rems (150 mSv);
 - II. Hands and forearms; feet and ankles; localized areas of skin averaged over areas no larger than ~~4~~ one square centimeter....200 rems (2 Sv);
 - III. Other Organs.....50 rems (500 mSv); and
- (iii) Each device bears a durable, legible, and clearly visible label or labels approved by the Department, which contain in a clearly identified and separate statement:
- (I) Instructions and precautions necessary to assure safe installation, operation, and servicing of the device (documents such as operating and service manuals may be identified in the label and used to provide this information);
 - (II) The requirement, or lack of requirement, for leak testing, or for testing any on/off mechanism and indicator, including the maximum time interval for such testing, and the identification of radioactive material by isotope, quantity of radioactivity, and date of determination of the quantity; and
 - (III) The information called for in one of the following statements, as appropriate, in the same or substantially similar form:
 - I. The receipt, possession, use, and transfer of

this device, Model _____, Serial No. _____, are subject to a general license or the equivalent and to the regulations of the U.S. Nuclear Regulatory Commission or of a State with which the U.S. Nuclear Regulatory Commission has entered into an agreement for the exercise of regulatory authority. This label shall be maintained on the device in a legible condition. Removal of this label is prohibited.

CAUTION - RADIOACTIVE MATERIAL

(NAME OF MANUFACTURER OR DISTRIBUTOR)

Rule .02(11)(d)1.(iii)(III)II

- II. The receipt, possession, use, and transfer of this device, Model _____, Serial No. _____, are subject to a general license or the equivalent, and to the regulations of a Licensing State. This label shall be maintained on the device in a legible condition. Removal of this label is prohibited.

CAUTION - RADIOACTIVE MATERIAL

(NAME OF MANUFACTURER OR DISTRIBUTOR)

Note: The model, serial number, and name of the manufacturer or distributor may be omitted from the appropriate label provided the information is elsewhere specified in labeling affixed to the device. Devices distributed pursuant to Regulations equivalent to (11)(d) prior to January 1, 1981, may bear labels authorized by the Regulations in effect on January 1, 1980. Devices distributed on or after January 1, 1981, including devices redistributed upon radioactive sources exchange, shall bear labels authorized in (11)(d).

2. In the event the applicant desires that the device be tested at intervals longer than 6 six months, either for proper operation of the on/off mechanism and indicator, if any, or for leakage of radioactive material, or for both, the applicant shall include in his application sufficient information to demonstrate that such longer interval is justified by performance characteristics of the device or similar devices and by design features which have a significant bearing on the probability or consequences of leakage of radioactive material from the device or failure of the on/off mechanism and indicator. In determining the acceptable interval for the test for leakage of radioactive material, the Department will consider information which includes, but is not limited to:
 - (i) Primary containment (source capsule);
 - (ii) Protection of primary containment;
 - (iii) Method of sealing containment;

Rule .02(11)(d)2.(iv)

- (iv) Containment construction materials;
 - (v) Form of contained radioactive material;
 - (vi) Maximum temperature withstood during prototype tests;
 - (vii) Maximum pressure withstood during prototype tests;
 - (viii) Maximum quantity of contained radioactive material;
 - (ix) Radiotoxicity of contained radioactive material; and
 - (x) Operating experience with identical devices or similarly designed and constructed devices.
3. In the event the applicant desires that the general licensee under (6)(c), or under equivalent regulations of the U.S. Nuclear Regulatory Commission, an Agreement State, or a Licensing State, be authorized to install the device, collect the sample to be analyzed by a specific licensee for leakage of radioactive material, service the device, test the on/off mechanism and indicator, or remove the device from installation, the applicant shall include in his application written instructions to be followed by the general licensee, estimated calendar quarter doses associated with such activity or activities, and the basis for such estimates. The submitted information shall demonstrate that the 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, is unlikely to cause that individual to receive a dose in excess of 40 ten percent of the annual limits specified in Rule .03(5)(a)1. of this Chapter.
4. Each person licensed under (11)(d) to distribute devices to generally licensed persons shall:
- (i) Furnish a copy of the general license contained in (6)(c) to each person to whom he directly or through an intermediate person transfers radioactive material in a device for use pursuant to the general license contained in (6)(c);

Rule .02(11)(d)4.(ii)

- (ii) Furnish a copy of the general license contained in the U.S. Nuclear Regulatory Commission's, Agreement State's, or Licensing State's regulation equivalent to (6)(c), or, alternatively, furnish a copy of the general license contained in (6)(c) to each person to whom he directly or through an intermediate person transfers radioactive material in a device for use pursuant to the general license of the U.S. Nuclear Regulatory Commission, the Agreement State, or the Licensing State. If a copy of the general license in (6)(c) is furnished to such a person, it shall be accompanied by a note explaining that the use of the device is regulated by the U.S. Nuclear Regulatory Commission, Agreement State, or Licensing State under requirements substantially the same as those in (6)(c);
- (iii) Report to the Department all transfers of such devices to persons for use under the general license in (6)(c). Such report shall identify each general licensee by name and address, an individual by name and/or position who may constitute a point of contact between the Department and the general licensee, the type and model number of device transferred, and the quantity and type of radioactive material contained in the device. If one or more intermediate persons will temporarily possess the device at the intended place of use prior to its possession by the user, the report shall include identification of each intermediate person by name, address, contact, and relationship to the intended user. If no transfers have been made to persons generally licensed under (6)(c) during the reporting period, the report shall so indicate. The report shall cover each calendar quarter and shall be filed within 30 days thereafter; and
- (iv) Furnish reports to other agencies as follows:
 - (I) Report to the U.S. Nuclear Regulatory Commission all transfers of such devices to persons for use under the U.S. Nuclear Regulatory Commission general license in Section 31.5 of 10 CFR, Part 31;

Rule .02(11)(d)4.(iv)(II)

- (II) Report to the responsible state agency all transfers of devices manufactured and distributed pursuant to (11)(d) for use under a general license in that state's regulations equivalent to (6)(c);
- (III) Have such reports identify each general licensee by name and address, an individual by name and/or position who may constitute a point of contact between the agency and the general licensee, the type and model of the device transferred, and the quantity and type of radioactive material contained in the device. If one or more intermediate persons will temporarily possess the device at the intended place of use prior to its possession by the user, the report shall include identification of each intermediate person by name, address, contact, and relationship to the intended user. The report shall be submitted within 30 days after the end of each calendar quarter in which such a device is transferred to the generally licensed person;
- (IV) If no transfers have been made to U.S. Nuclear Regulatory Commission licensees during the reporting period, report this information to the U.S. Nuclear Regulatory Commission; and
- (V) If no transfers have been made to general licensees within a particular state during the reporting period, report this information to the responsible state agency upon request of that agency; and
- (v) Keep records showing the name, address, and the point of contact for each general licensee to whom he directly or through an intermediate person transfers radioactive material in devices for use pursuant to the general license provided in (6)(c), or equivalent regulations of the U.S. Nuclear Regulatory Commission, an Agreement State, or a Licensing State. The records shall show the date of each transfer, the radionuclide, and the quantity of radioactivity in each device transferred, the identity of any intermediate person, and compliance with the report requirements of (11)(d)4.

Rule .02(11)(e)

- (e) Special Requirements for the Manufacture, Assembly, or Repair of Luminous Safety Devices for Use in Aircraft. An application for a specific license to manufacture, assemble, or repair luminous safety devices containing tritium or promethium-147 for use in aircraft, and for distribution to persons generally licensed under (6)(d), will be approved subject to the following conditions:
1. The applicant satisfies the general requirements specified in (8), and
 2. The applicant satisfies the requirements of Sections 32.53, 32.54, 32.55, 32.56, and 32.101 of 10 CFR, Part 32, or their equivalent.
- (f) Special Requirements for License to Manufacture Calibration Sources Containing Americium-241, Plutonium, or Radium-226 for Distribution to Persons Generally Licensed Under (6)(f). An application for a specific license to manufacture calibration and reference sources containing americium-241, plutonium, or radium-226 to persons generally licensed under (6)(f) will be approved subject to the following conditions:
1. The applicant satisfies the general requirement of (8), and
 2. The applicant satisfies the requirements of Sections 32.57, 32.58, 32.59, and 32.102 of 10 CFR, Part 32, and Section 70.39 of 10 CFR, Part 70, or their equivalent.
- (g) Manufacture and Distribution of Radioactive Material for Certain In Vitro Clinical or Laboratory Testing Under General License. An application for a specific license to manufacture or distribute radioactive material for use under the general license of (6)(g) will be approved subject to the following conditions:
1. The applicant satisfies the general requirements specified in (8);
 2. The radioactive material is to be prepared for distribution in prepackaged units of:
 - (i) Iodine-125 in units not exceeding 40 ten microcuries (370 kBq) each,
 - (ii) Iodine-131 in units not exceeding 40 ten microcuries (370 kBq) each,

Rule .02(11)(g)2.(iii)

- each,
- (iii) Carbon-14 in units not exceeding 40 ten microcuries (370 kBq) each,
 - (iv) Hydrogen-3 (tritium) in units not exceeding 50 microcuries (1.85 MBq) each,
 - (v) Iron-59 in units not exceeding 20 microcuries (740 kBq)
 - (vi) Cobalt-57 in units not exceeding 40 ten microcuries (370 kBq) each,
 - (vii) Selenium-75 in units not exceeding 40 ten microcuries (370 kBq) each,
 - (viii) Mock Iodine-125 in units not exceeding 0.05 microcurie (1.85 kBq) of iodine-129 and 0.005 microcurie (185 Bq) of americium-241 each;

3. Each prepackaged unit bears a durable and clearly visible label:

- (i) Identifying the radioactive contents as to chemical form and radionuclide, and indicating that the amount of radioactivity does not exceed 40 ten microcuries (370 kBq) of iodine-125, iodine-131, carbon-14, cobalt-57, or selenium-75; 50 microcuries (1.85 MBq) of hydrogen-3 (tritium); 20 microcuries (740 kBq) of iron-59; or Mock Iodine-125 in units not exceeding 0.05 microcurie (1.85 kBq) of iodine-129 and 0.005 microcurie (185 Bq) of americium-241 each; and
- (ii) Displaying the radiation caution symbol described in Rule 391-3-17-.03, of this Chapter, and the words, "CAUTION, RADIOACTIVE MATERIAL", and "Not for Internal or External Use in Humans or Animals";

4. One of the following statements, as appropriate, or a substantially similar statement which contains the information called for in one of the following statements, appears on a label affixed to each prepackaged unit or appears in a leaflet or brochure which accompanies the package:

Rule .02(11)(h)1.

1. The applicant satisfies the general requirements of (8), and
 2. The criteria of Sections 32.61, 32.62, and 32.103 of 10 CFR, Part 32, are met.
- (i) Manufacture, Preparation, or Transfer, for Commercial Distribution of Pharmaceuticals Containing Radioactive Material for Medical Use. An application for a specific license to manufacture, prepare, or transfer for commercial distribution pharmaceuticals containing radioactive material for use by persons licensed pursuant to (9) for the uses listed in (8), (9), and (12) of Rule .05 of this Chapter will be approved subject to the following conditions:
1. The applicant satisfies the general requirements specified in (8);
 2. The applicant submits evidence that the applicant is at least one of the following:
 - (i) Registered or licensed with the U.S. Food and Drug Administration (FDA) as a drug manufacturer;
 - (ii) Registered or licensed with a State Agency as a drug manufacturer; or
 - (iii) Licensed as a pharmacy by the Georgia State Board of Pharmacy.
 3. The applicant submits information on the radionuclide, chemical and physical form, packaging including maximum activity per vial, syringe, generator, or other container of the radiopharmaceutical, and shielding provided by the packaging to show it is appropriate for safe handling and storage of radiopharmaceuticals by licensees; and
 4. The applicant satisfies the following requirements:

Rule .02(11)(i)4.(i)

- (i) A label is affixed to each transport radiation shield, whether it is constructed of lead, glass, plastic, or other material, of a radiopharmaceutical to be transferred for commercial distribution. The label must include the radiation symbol and words "Caution, Radioactive Material" or "Danger Radioactive Material"; the name of the radiopharmaceutical or its abbreviation, and quantity of radioactivity at a specified date and time. For radiopharmaceuticals with a half-life greater than 100 days, the time may be omitted.
 - (ii) A label is affixed to each syringe, vial, or other container used to hold a radiopharmaceutical to be transferred for commercial distribution. The label must include the words "Caution, Radioactive Material" or "Danger Radioactive Material" and an identifier that ensures that the syringe, vial, or other container can be correlated with the information on the transport radiation shield label, leaflet, or brochure.
5. A licensee described by (11)(i)2.(iii):
- (i) May prepare radiopharmaceuticals for medical use, as defined in Rule .05 (2)(j) provided that the radiopharmaceutical is prepared by either an authorized nuclear pharmacist, as specified in (ii) and (iii) or an individual under the supervision of an authorized nuclear pharmacist as specified in Rule .05~~(11)~~(e) (6)(h)2.
 - (ii) May allow a pharmacist to work as an authorized nuclear pharmacist if this individual:
 - (I) Qualifies as an authorized nuclear pharmacist as defined in .05(2)(c),
 - (II) Meets the requirements specified in Rule .05~~(19)(m)~~ or ~~(n)~~ .05(16)(n) and the licensee has received an approved license amendment identifying this individual as an authorized nuclear pharmacist, or has notified the Department in accordance with Rule .05(5)(b), or
 - (III) Is designated as an authorized nuclear pharmacist in accordance with (iii).
 - (iii) The actions authorized in (i) and (ii) are permitted notwithstanding more restrictive language in license conditions.

Rule .02(11)(i)5.(iv)

- (iv) May designate a nuclear pharmacist ~~as defined in~~ in accordance with Rule ~~.05(19)(m)~~ .05(16)(o) as an authorized nuclear pharmacist if the individual is identified as of December 31, 1996, as an "authorized user" on a license issued by the Department, the NRC, or an Agreement State, under this rule or equivalent requirements.
 - (v) Shall provide to the Department a copy of each individual's certification by the Board of Pharmaceutical Specialties, or the Department, NRC, Agreement State license, or permit issued by a licensee of broad scope, and a copy of the ~~Georgia pharmacy licensure~~ individual's license to practice pharmacy in the State of Georgia issued by the Secretary of State's office, no later than 30 days after the date that the licensee allows pursuant to (ii) and (iii), the individual to work as an authorized nuclear pharmacist.
6. A licensee shall possess and use instrumentation to measure the radioactivity of radiopharmaceuticals. The licensee shall measure, by direct measurements or by combination of measurements and calculations, the amount of radioactivity in dosages of alpha- , beta-, or photon- emitting radiopharmaceuticals prior to transfer for commercial distribution. In addition, the licensee shall:
- (i) Perform test before initial use, periodically, and following repair, on each instrument for accuracy, linearity, and geometry dependence, as appropriate for the use of the instrument; and make adjustments when necessary; and
 - (ii) Check each instrument for constancy and proper operation at the beginning of each day of use.
7. Nothing in this section relieves the licensee from complying with applicable FDA, other Federal, or other State requirements governing radiopharmaceuticals.
- (j) Manufacture and Distribution of Sources or Devices Containing Radioactive Material for Medical Use. An application for a specific license to manufacture and distribute sources and devices containing radioactive material to persons licensed pursuant to (9) for use as a calibration or reference source or for medical uses regulated by Rule ~~.05(17)~~ (13), (14), or (15) of this Chapter will be approved subject to the following conditions:

1. The applicant satisfies the general requirements of (8);
Rule .02(11)(j)2.
2. The applicant submits sufficient information regarding each type of source or device pertinent to an evaluation of its radiation safety, including:
 - (i) The radioactive material contained, its chemical and physical form, and amount,
 - (ii) Details of design and construction of the source or device,
 - (iii) Procedures for, and results of, prototype tests to demonstrate that the source or device will maintain its integrity under stresses likely to be encountered in normal use and accidents,
 - (iv) For devices containing radioactive material, the radiation profile of a prototype device,
 - (v) Details of quality control procedures to assure that production sources and devices meet the standards of the design and prototype tests,
 - (vi) Procedures and standards for calibrating sources and devices,
 - (vii) Legend and methods for labeling sources and devices as to their radioactive content, and
 - (viii) Instructions for handling and storing the source or device from the radiation safety standpoint. (These instructions are to be included on a durable label attached to the source or device or attached to a permanent storage container for the source or device. Instructions which are too lengthy for such label may be summarized on the label and printed in detail on a brochure which is referenced on the label.)
3. The label affixed to the source or device, or to the permanent storage container for the source or device, contains information on the radionuclide, quantity, and date of assay, and a statement that the source or device is licensed by the Department for distribution to persons licensed pursuant to (9) and to Rule .05(17) (13), (14), or (15) of this Chapter or under equivalent licenses of the U.S. Nuclear Regulatory Commission, an Agreement State, or a Licensing State, provided that such labeling for sources which do not require long term storage (such as gold-198 seeds) may be on

a leaflet or brochure which accompanies the source;

Rule .02(11)(j)4.

4. In the event the applicant desires that the source or device be required to be tested for leakage of radioactive material at intervals longer than 6 six months, he shall include in his application sufficient information to demonstrate that such longer interval is justified by performance characteristics of the source or device or similar sources or devices and by design features that have a significant bearing on the probability or consequences of leakage of radioactive material from the source; and
 5. In determining the acceptable interval for test of leakage of radioactive material, the Department will consider information that includes, but is not limited to, that which is listed in (11)(d)2.
- (k) Requirements for License to Manufacture and Distribute Industrial Products Containing Depleted Uranium for Mass-Volume Applications.
1. An application for a specific license to manufacture industrial products and devices containing depleted uranium for use pursuant to (5)(d) or equivalent regulations of the U.S. Nuclear Regulatory Commission or an Agreement State will be approved subject to the following conditions:
 - (i) The applicant satisfies the general requirements specified in (8);
 - (ii) The applicant submits sufficient information relating to the design, manufacture, prototype testing, quality control procedures, labeling or marking, proposed uses, and potential hazards of the industrial product or device to provide reasonable assurance that possession, use, or transfer of the depleted uranium in the product or device is not likely to cause any individual to receive in any period of 1 year a radiation dose in excess of 10 ten percent of the annual limits specified in Rule .03(5)(a)1. of this Chapter; and
 - (iii) The applicant submits sufficient information regarding the industrial product or device and the presence of depleted uranium for a mass-volume application in the product or device to provide reasonable assurance that unique benefits will accrue to the public because of the usefulness of the product or device.

Rule .02(11)(k)2.

2. In the case of an industrial product or device whose unique benefits are questionable, the Department will approve an application for a specific license under (11)(k) only if the product or device is found to combine a high degree of utility and low probability of uncontrolled disposal and dispersal of significant quantities of depleted uranium into the environment.
3. The Department may deny any application for a specific license under (11)(k) if the end use(s) of the industrial product or device cannot be reasonably foreseen.
4. Each person licensed pursuant to (11)(k)1. shall:
 - (i) Maintain the level of quality control required by the license in the manufacture of the industrial product or device and in the installation of the depleted uranium into the product or device;
 - (ii) Label or mark each unit to:
 - (I) Identify the manufacturer of the product or device and the number of the license under which the product or device was manufactured, the fact that the product or device contains depleted uranium, and the quantity of depleted uranium in each product or device; and
 - (II) State that the receipt, possession, use, and transfer of the product or device are subject to a general license or the equivalent and to the regulations of the U.S.Nuclear Regulatory Commission or an Agreement State;
 - (iii) Assure that the depleted uranium before being installed in each product or device has been impressed with the following legend clearly legible through any plating or other covering: "Depleted Uranium";
 - (iv) Furnish a copy of the general license contained in:
 - (I) (5)(d) and a copy of Department form "Registration Certificate - Use of Depleted Uranium Under General License" to each person to whom he transfers depleted uranium in a product or device for use pursuant to the general license contained in (5)(d), or

Rule .02(11)(k)4.(iv)(II)

- (II) The U.S. Nuclear Regulatory Commission's or Agreement State's regulation equivalent to (5)(d) and a copy of the U.S. Nuclear Regulatory Commission's or Agreement State's certificate, or, alternatively, furnish a copy of the general license contained in (5)(d) and a copy of Department form "Registration Certificate - Use of Depleted Uranium Under General License" to each person to whom he transfers depleted uranium in a product or device for use pursuant to the general license of the U.S. Nuclear Regulatory Commission or an Agreement State, with a note explaining that use of the product or device is regulated by the U.S. Nuclear Regulatory Commission or an Agreement State under requirements substantially the same as those in (5)(d);
- (v) Report to the Department all transfers of industrial products or devices to persons for use under the general license in (5)(d). Such report shall identify each general licensee by name and address, an individual by name and/or position who may constitute a point of contact between the Department and the general licensee, the type and model number of device transferred, and the quantity of depleted uranium contained in the product or device. The report shall be submitted within 30 days after the end of each calendar quarter in which such a product or device is transferred to the generally licensed person. If no transfers have been made to persons generally licensed under (5)(d) during the reporting period, the report shall so indicate;
- (vi) Report to other agencies as follows:
 - (I) To the U.S. Nuclear Regulatory Commission all transfers of industrial products or devices to persons for use under the U.S. Regulatory Commission general license in Section 40.25 of 10 CFR, Part 40;
 - (II) To the responsible state agency all transfers of devices manufactured and distributed pursuant to (11)(I) for use under a general license in that state's regulations equivalent to (5)(d);

Rule .02(11)(k)4.(vi)(III)

- (III) Have such reports identify each general licensee by name and address, an individual by name and/or position who may constitute a point of contact between the agency and the general licensee, the type and model number of the device transferred, and the quantity of depleted uranium contained in the product or device. The report shall be submitted within 30 days after the end of each calendar quarter in which such product or device is transferred to the generally licensed person;
 - (IV) If no transfers have been made to U.S. Nuclear Regulatory Commission licensees during the reporting period, report this information to the U.S. Nuclear Regulatory Commission; and
 - (V) If no transfers have been made to general licensees within a particular Agreement State during the reporting period, report this information to the responsible Agreement State agency upon the request of that agency; and
 - (vii) Keep records showing the name, address, and point of contact for each general licensee to whom he transfers depleted uranium in industrial products or devices for use pursuant to the general license provided in (5)(d) or equivalent regulations of the U.S. Nuclear Regulatory Commission or an Agreement State. The records shall be maintained for a period of 2 two years and shall show the date of each transfer, the quantity of depleted uranium in each product or device transferred, and compliance with the report requirements of (11).
- (I) Registration of Product Information
1. Any manufacturer or distributor of a sealed source or a device containing a sealed source whose product is intended for use under a specific license may submit a request to the Department for evaluation of radiation safety information about its product and for its registration.
 2. The request for review shall be made in duplicate and sent to the Georgia Department of Natural Resources; Radioactive Materials Program; 4244 International Parkway, Suite 114; Atlanta, GA 30354.

Rule .02(11)(l)3.

3. The request for review of a sealed source or a device, must include sufficient information about the design, manufacture, prototype testing, quality control and assurance programs, labeling, proposed uses and leak testing, and, for a device, the information about installation, service and maintenance, operating and safety instructions, and its potential hazards, to provide reasonable assurance that the radiation safety properties of the source or device are adequate to protect health and minimize the danger to life and property.
4. The Department evaluates a sealed source or a device using radiation safety criteria in accepted industry standards. The Department shall use criteria and standards sufficient to ensure that the radiation safety properties of the sealed source or device are adequate to protect health and minimize danger to life and property.
5. After completion of the evaluation, the Department issues a certificate of registration to the person making the request. The certificate of registration acknowledges the availability of the submitted information for inclusion in ~~the~~ an application for a specific license proposing use of the product.
6. The person submitting the request for evaluation and registration of safety information about the product shall manufacture and/or distribute the product in accordance with:
 - (i) The statements and representations, including quality control and assurance programs, contained in the request; and
 - (ii) The provisions of the registration certificate.

(12) Issuance of Specific Licenses.

- (a) Upon a determination that an application meets the requirements of the Act and the Regulations of the Department, the Department may issue a specific license authorizing the proposed activity in such form and containing such conditions and limitations as it deems appropriate or necessary to effectuate the purposes of the Act.
- (b) The Department may incorporate in any license at the time of issuance, or thereafter, such additional requirements and conditions, as authorized by

Rule, Regulation, or Order, with respect to the licensee's receipt, possession, use, and transfer of radioactive material subject to this Chapter as necessary in order to:

Rule .02(12)(b)1.

1. Minimize danger to public health and safety or property;
2. Require such reports and the keeping of such records, and to provide for such inspections of activities under the license as necessary to effectuate the purposes of the Act; and
3. Prevent loss or theft of material subject to this Rule.

(13) Specific Terms and Conditions of Licenses.

- (a) Each license issued pursuant to this Rule shall be subject to all the provisions of the Act, and to all Rules, and Regulations of the Department and Orders of the Director.
- (b) No license issued or granted under this Rule and no right to possess or utilize radioactive material granted by any license issued pursuant to this Rule shall be transferred, assigned, or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of any license to any person unless the Department, after securing full information, finds that the transfer is in accordance with the provisions of the Act, and gives its consent in writing.
- (c) Each person licensed by the Department pursuant to this Rule shall confine use and possession of the material licensed to the locations and purposes authorized in the license.
- (d) Each licensee shall notify the Department in writing immediately and request termination of his license when the licensee decides to terminate all activities involving radioactive materials authorized under the license. This notification and request for termination must include the information specified in (18)(c).
- (e) Each licensee shall notify the Department in writing immediately following the filing of a voluntary or involuntary petition for bankruptcy under any Chapter of Title 11 (Bankruptcy) of the United States Code by or against:
 1. The licensee;
 2. An entity (as that term is defined in 11 U.S.C. 101(14)) controlling the licensee or listing the license or licensee as property of the estate; or
 3. An affiliate (as that term is defined in 11 U.S.C. 101(2) of the

licensee.

Rule .02(13)(f)

- (f) The notification specified in (13)(e) shall indicate the bankruptcy court in which the petition for bankruptcy was filed and the date of the filing of the petition.
- (14) Expiration of Licenses. Except as provided in (15)(b), each specific license shall expire at the end of the day, in the month and year stated therein.
- (15) Renewal of Licenses.
- (a) No less than 30 days before the expiration date specified in a specific license, the licensee shall either:
1. Submit an application for license renewal filed in accordance with (7), or
 2. Notify the Department in writing in accordance with (13)(d) and (15)(c) if the licensee decides not to renew the license.
- (b) In any case in which a licensee, not less than 30 days prior to the expiration of his existing license, has filed an application in proper form for renewal or for a new license authorizing the same activities, such existing license shall not expire until the application has been finally determined by the Department.
- (c) If a licensee does not submit an application for license renewal on or before the expiration date specified in the license, then the licensee shall, on or before that expiration date:
1. Terminate the use of radioactive material,
 2. Remove radioactive contamination to the extent practicable,
 3. Properly dispose of the radioactive material, and
 4. Submit the information specified in (18)(ed).
- (16) Amendment of Licenses at Request of Licensee. Applications for amendment of a license shall be filed in accordance with (7) and shall specify the respects in which the licensee desires the license to be amended and the grounds for such amendment.
- (17) Department Action on Applications to Renew or Amend. In considering an application by a licensee to renew or amend the license, the Department will

apply the criteria set forth in (8), (9), (10), or (11), as applicable.

Rule .02(18)

(18) Modification, Revocation, and Termination of Licenses.

- (a) The terms and conditions of all licenses shall be subject to amendment, revision, or modification, or the license may be suspended or revoked by reason of amendments to the Act, or by reason of Rules, Regulations, and Orders issued by the Director.
- (b) Any license may be revoked, suspended, or modified, in whole or in part, for any material false statement in the application or any statement of fact required under provisions of the Act or of this Rule, or because of conditions revealed by such application or statement of fact or any report, record, or inspection or other means which would warrant the Department to refuse to grant a license on an original application, or for violation of, or failure to observe, any of the terms and conditions of the Act, of the license, or of any Rule, Regulation, or Order of the Department.
- (c) Each specific license revoked by the Department expires at the end of the day on the date of the Department's final determination to revoke the license, or on the expiration date stated in the determination, or as otherwise provided by Department Order.
- (d) The Department may terminate a specific license upon request submitted by the licensee to the Department in writing provided the following:
 - 1. The licensee certifies the disposition of all licensed material, including accumulated wastes, by submitting a completed "Request to Terminate Radioactive Materials License" form or equivalent information; and
 - 2. The licensee conducts a radiation survey of the premises where the licensed activities were carried out and submits a report of the results of the survey unless the licensee demonstrates that the premises are suitable for release in ~~some other manner~~ accordance with the requirements for decommissioning in Rule .03(7). As appropriate, the licensee shall:
 - (i) Report levels of gamma radiation in units of microrentgen (millisieverts) per hour at one meter from surfaces, and report levels of radioactivity, including alpha and beta, in

units of megabecquerels (disintegrations per minute or microcuries) per 100 square centimeters - removable and fixed - for surfaces, microcuries (megabecquerels) per milliliter for water, and picocuries (becquerels) per gram for solids such as soils or concrete; and

Rule .02(18)(d)2.(ii)

- (ii) Specify the survey instrument(s) used and certify that each instrument is properly calibrated and tested.
3. If detectable levels of residual radioactive contamination are found, the license continues to be in effect, even beyond the expiration date if necessary, with respect to possession of residual radioactive material as contamination until the Department notifies the licensee in writing that the license is terminated. Each licensee who possesses residual radioactive material under this paragraph shall initiate decommissioning activities as required by (8)(h).
 4. If no residual radioactive contamination is detected, the licensee shall submit a certification that no detectable radioactive contamination was found. If the information submitted is found to be adequate, the Department will notify the licensee in writing that the license is terminated.
- (e) Specific licenses, including expired licenses, will be terminated by written notice to the licensee when the Department determines that:
1. Radioactive material has been properly disposed;
 2. Reasonable effort has been made to eliminate residual radioactive contamination, if present; and
 3.
 - (i) A radiation survey has been performed which demonstrates that the premises are suitable for release in accordance with Department requirements for decommissioning in Rule .03(7); or
 - (ii) Other information submitted by the licensee is sufficient to demonstrate that the premises are suitable for release in accordance with Department requirements for decommissioning in Rule .03(7).
 4. Prior to license termination, each licensee authorized to possess radioactive material with a half-life greater than 120 days, in an unsealed form, shall forward the following records to the Department:

- (i) Records of disposal of licensed material made under Rule .03(13)(b) (including burials authorized before January 28, 1982), .03(13)(c), .03(13)(d), .03(13)(e); and
- (ii) Records required by Rule .03(14)(c)2.(iv).

Rule .02(18)(e)5.

- 5. If licensed activities are transferred or assigned in accordance with Rule .02(13)(b), each licensee authorized to possess radioactive material, with a half-life greater than 120 days, in an unsealed form, shall transfer the following records to the new licensee and the new licensee will be responsible for maintaining these records until the license is terminated:
 - (i) Records of disposal of licensed material made under Rule .03(13)(b) (including burials authorized before January 28, 1982), .03(13)(c), .03(13)(d), .03(13)(e); and
 - (ii) Records required by Rule .03(14)(c)2.(iv).
- 6. Prior to license termination, each licensee shall forward the records required by Rule .02(8)(g)7. to the Department.

(19) Transfer of Material.

- (a) Authorization for Transfer. No licensee shall transfer radioactive material except as authorized pursuant to (19)(b).
- (b) Condition of Transfer. Any licensee may transfer radioactive material, subject to acceptance by the transferee, to:
 - 1. The Department, after receiving prior approval from the Department;
 - 2. The United States Department of Energy or any successor thereto;
 - 3. Any person exempt from this Rule to the extent permitted under such exemption;
 - 4. Any person licensed to receive such material under terms of a general license or its equivalent, or specific license or equivalent licensing document issued by the Department, the U.S. Nuclear Regulatory Commission, any Agreement State, or any Licensing State, to any person otherwise authorized to receive such material by the Federal Government or any agency thereof, the Department,

any Agreement State, or any Licensing State; or

5. Any person authorized by the Department in writing.
- (c) Before transferring radioactive material to a specific licensee of the Department, the U.S. Nuclear Regulatory Commission, an Agreement State, or a Licensing State, or to a general licensee who is required to register with

Rule.02(19)(c)

the Department, the U.S. Nuclear Regulatory Commission, an Agreement State, or a Licensing State prior to receipt of the radioactive material, the licensee transferring the material shall verify that the transferee's license authorizes the receipt of the type, form, and quantity of radioactive material to be transferred.

- (d) The following methods for the verification required by (19)(c) are acceptable:
1. The transferor may possess, and read, a current copy of the transferee's specific license or registration certificate.
 2. The transferor may have in his possession a written certification by the transferee that the transferee is authorized by license or registration certificate to receive the type, form, and quantity of radioactive material to be transferred, specifying the license or registration certificate number, issuing agency, and expiration date.
 3. For emergency shipments, the transferor may accept oral certification by the transferee that the transferee is authorized by license or registration certificate to receive the type, form, and quantity of radioactive material to be transferred, specifying the license or registration certificate number, issuing agency, and expiration date; provided that the oral certification is confirmed in writing within 10 ten days.
 4. The transferor may obtain other sources of information compiled by a reporting service from official records of the Department, the U.S. Nuclear Regulatory Commission, the licensing agency of an Agreement State, or a Licensing State regarding the identity of licensees and the scope and expiration date of licenses and registration.
 5. When none of the methods of verification described in paragraphs (19)(d)1., 2., 3., and 4. is readily available or when a transferor desires to verify that information received by one of such methods

is correct or up-to-date, the transferor may obtain and record confirmation from the Department, the U.S. Nuclear Regulatory Commission, the licensing agency of an Agreement State, or a Licensing State that the transferee is licensed to receive the radioactive material.

- (e) Preparation for shipment and transport of radioactive material shall be in accordance with the provisions of Rule .06 of this Chapter.

Rule .02(20)

(20) Reciprocity.

- (a) Persons licensed by other Agencies. Subject to the provisions of this Chapter, any person who holds a specific license from the U.S. Nuclear Regulatory Commission, a Licensing State, or any Agreement State, other than this State, and issued by the agency having jurisdiction where the licensee maintains an office for directing the licensed activity and at which radiation safety records are normally maintained, is hereby granted a general license to conduct the activities authorized in such licensing document within this State, except in areas of exclusive federal jurisdiction, for a period not in excess of 180 days in any calendar year provided that:
 - 1. The licensing document does not limit the activity authorized by such document to specified installations or locations;
 - 2. The out-of-state licensee notifies the Department in writing at least 3 three days prior to engaging in such activity. Such notification shall indicate the location, period, and type of proposed possession and use within the State, and shall be accompanied by a copy of the pertinent licensing document. If, for a specific case, the 3-day period would impose an undue hardship on the out-of-state licensee, he may, upon application to the Department, obtain permission to proceed sooner;
 - 3. The out-of-state licensee complies with all applicable Rules of the Department, and with all the terms and conditions of his licensing document except any such terms and conditions which may be inconsistent with applicable Rules of the Department;
 - 4. Provided further that the Department may require the out-of-state licensee to supply such other information as the Department may

reasonably request; and

5. The out-of-state licensee shall not transfer or dispose of radioactive material possessed or used under the general license provided in (20)(a) except by transfer to a person who is:
 - (i) Specifically licensed by the Department, the U.S. Nuclear Regulatory Commission, or by another Licensing State to receive such material; or
 - (ii) Exempt from the requirements for a license for such material under (3)(a).

Rule .02(20)(b)

- (b) Notwithstanding the provisions of (20)(a), any person who holds a specific license issued by the U.S. Nuclear Regulatory Commission, a Licensing State, or an Agreement State authorizing the holder to manufacture, transfer, install, or service a device described in (6)(c)1. within areas subject to the jurisdiction of the licensing body is hereby granted a general license to install, transfer, demonstrate, or service such device in this State provided that:
 1. Such person shall file a report with the Department within 30 days after the end of each calendar quarter in which any device is transferred to or installed in this State. Each such report shall identify each general licensee to whom such a device is transferred by name and address, the type of device transferred, and the quantity and type of radioactive material contained in the device;
 2. The device has been manufactured, labeled, installed, and serviced in accordance with applicable provisions of the specific license issued to such person by the U.S. Nuclear Regulatory Commission, a Licensing State, or an Agreement State;
 3. Such person shall assure that any labels required to be affixed to the device under regulations of the authority which licensed the manufacturing of the device bear a statement that "Removal of This Label is Prohibited"; and
 4. The holder of the specific license shall furnish to each general licensee to whom he transfers such a device or on whose premises he installs such a device a copy of the general license contained in (6)(c).
- (c) The Department may withdraw, limit, or qualify its acceptance of any

specific license or equivalent licensing document issued by another agency, or any product distributed pursuant to such licensing document, upon determining that such action is necessary in order to prevent undue hazard to public health and safety, to property, or to the environment.

(21) Schedules.

(a) Schedule A.

SCHEDULE A
EXEMPT CONCENTRATIONS

Element (Atomic Number)	Isotope	Concentration	
		Gas $\mu\text{Ci}/\text{ml}^1$	Liquid and Solid $\mu\text{Ci}/\text{ml}^2$
		Antimony (51) 3×10^{-4}	Sb 122
	Sb 124		2×10^{-4}
	Sb 125		1×10^{-3}
Argon (18)	Ar 37	1×10^{-3}	
	Ar 41	4×10^{-7}	
Arsenic (33)	As 73		5×10^{-3}
	As 74		5×10^{-4}
	As 76		2×10^{-4}
	As 77		8×10^{-4}
Barium (56)	Ba 131		2×10^{-3}
	Ba 140		3×10^{-4}
Beryllium (4)	Be 7		2×10^{-2}
Bismuth (83)	Bi 206		4×10^{-4}
Bromine (35)	Br 82	4×10^{-7}	3×10^{-3}
Cadmium (48)	Cd 109		2×10^{-3}
	Cd 115m		3×10^{-4}
	Cd 115		3×10^{-4}
Calcium (20)	Ca 45		9×10^{-5}
	Ca 47		5×10^{-4}
Carbon (6)	C 14	1×10^{-6}	8×10^{-3}
Cerium (58)	Ce 141		9×10^{-4}
	Ce 143		4×10^{-4}
	Ce 144		1×10^{-4}
Cesium (55)	Cs 131		2×10^{-2}
	Cs 134m		6×10^{-2}
	Cs 134		9×10^{-5}
Chlorine (17)	Cl 38	9×10^{-7}	4×10^{-3}
Chromium (24)	Cr 51		2×10^{-2}

Cobalt (27)

Co 57

5×10^{-3}

Co 60

5×10^{-4}

Copper (29)

Cu 64

3×10^{-3}

Rule .02(21)(a)

Element (Atomic Number)	Isotope	Column I Gas Concentration $\mu\text{Ci}/\text{ml}^1$	Column II Liquid and Solid Concentration $\mu\text{Ci}/\text{ml}^2$
Dysprosium (66)	Dy 165		4×10^{-3}
	Dy 166		4×10^{-4}
Erbium (68)	Er 169		9×10^{-4}
	Er 171		1×10^{-3}
Europium (63)	Eu 152		6×10^{-4}
	(T/2 = 9.2 Hrs) Eu 155		2×10^{-3}
Fluorine (9)	F 18	2×10^{-6}	8×10^{-3}
Gadolinium (64)	Gd 153		2×10^{-3}
	Gd 159		8×10^{-4}
Gallium (31)	Ga 72		4×10^{-4}
Germanium (32)	Ge 71		2×10^{-2}
Gold (79)	Au 196		2×10^{-3}
	Au 198		5×10^{-4}
	Au 199		2×10^{-3}
Hafnium (72)	Hf 181		7×10^{-4}
Hydrogen (1)	H 3	5×10^{-6}	3×10^{-2}
Indium (49)	In 113m		1×10^{-2}
	In 114m		2×10^{-4}
Iodine (53)	I 126	3×10^{-9}	2×10^{-5}
	I 131	3×10^{-9}	2×10^{-5}
	I 132	8×10^{-8}	6×10^{-4}
	I 133	1×10^{-8}	7×10^{-5}
	I 134	2×10^{-7}	1×10^{-3}
Iridium (77)	Ir 190		2×10^{-3}
	Ir 192		4×10^{-4}
	Ir 194		3×10^{-4}
Iron (26)	Fe 55		8×10^{-3}
	Fe 59		6×10^{-4}
Krypton (36)	Kr 85m	1×10^{-6}	
	Kr 85	3×10^{-6}	
Lanthanum (57)	La 140		2×10^{-4}
Lead (82)	Pb 203		4×10^{-3}
Lutetium (71)	Lu 177		1×10^{-3}
Manganese (25)	Mn 52		3×10^{-4}
	Mn 54		1×10^{-3}
	Mn 56		1×10^{-3}

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Element (Atomic Number)	Isotope	Column I Gas Concentration $\mu\text{Ci}/\text{ml}^1$	Column II Liquid and Solid Concentration $\mu\text{Ci}/\text{ml}^2$
Mercury (80)	Hg 197m		2×10^{-3}
	Hg 197		3×10^{-3}
	Hg 203		2×10^{-4}
Molybdenum (42)	Mo 99		2×10^{-3}
Neodymium (60)	Nd 147		6×10^{-4}
	Nd 149		3×10^{-3}
Nickel (28)	Ni 65		1×10^{-3}
Niobium (columbium) (41)	Nb 95	1×10^{-3}	
	Nb 97	9×10^{-3}	
Osmium (76)	Os 185		7×10^{-4}
	Os 191m		3×10^{-2}
	Os 191		2×10^{-3}
	Os 193		6×10^{-4}
Palladium (46)	Pd 103		3×10^{-3}
	Pd 109		9×10^{-4}
Phosphorus (15)	P32		2×10^{-4}
Platinum (78)	Pt 191		1×10^{-3}
	Pt 193m		1×10^{-2}
	Pt 197m		1×10^{-2}
	Pt 197		1×10^{-3}
Polonium (84)	Po 210		7×10^{-6}
Potassium (19)	K 42		3×10^{-3}
Praseodymium (59)	Pr 142		3×10^{-4}
	Pr 143		5×10^{-4}
Promethium (61)	Pm 147		2×10^{-3}
	Pm 149		4×10^{-4}
Radium (88)	Ra 226		1×10^{-7}
	Ra 228		3×10^{-7}
Rhenium (75)	Re 183		6×10^{-3}
	Re 186		9×10^{-4}
	Re 188		6×10^{-4}
Rhodium (45)	Rh 103m		1×10^{-1}
Rubidium (37)	Rb 86	7×10^{-4}	
Ruthenium (44)	Ru 97	4×10^{-3}	
	Ru 103		8×10^{-4}
	Ru 105		1×10^{-3}
	Ru 106		1×10^{-4}

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Element (Atomic Number)	Isotope	Column I Gas Concentration $\mu\text{Ci}/\text{ml}^1$	Column II Liquid and Solid Concentration $\mu\text{Ci}/\text{ml}^2$
Samarium (62)	Sm 153		8×10^{-4}
Scandium (21)	Sc 46		4×10^{-4}
	Sc 47		9×10^{-4}
	Sc 48		3×10^{-3}
	Selenium (34)	Se 75	
Silicon (14)	Si 31		9×10^{-3}
Silver (47)	Ag 105		1×10^{-3}
	Ag 110m		3×10^{-4}
	Ag 111		4×10^{-4}
Sodium (11)	Na 24		2×10^{-3}
Strontium (38)	Sr 85		1×10^{-3}
	Sr 89		1×10^{-4}
	Sr 91		7×10^{-4}
	Sr 92		7×10^{-4}
Sulfur (16)	S 35	9×10^{-8}	6×10^{-4}
Tantalum (73)	Ta 182		4×10^{-4}
Technetium (43)	Tc 96m		1×10^{-1}
	Tc 96		1×10^{-3}
Tellurium (52)	Te 125m		2×10^{-3}
	Te 127m		6×10^{-4}
	Te 127		3×10^{-3}
	Te 129m		3×10^{-4}
	Te 131m		6×10^{-4}
	Te 132		3×10^{-4}
Terbium (65)	Tb 160		4×10^{-4}
Thallium (81)	Tl 200		4×10^{-3}
	Tl 201		3×10^{-3}
	Tl 202		1×10^{-3}
	Tl 204		1×10^{-3}
Thulium (69)	Tm 170		5×10^{-4}
Tin (50)	Sn 113		9×10^{-4}
	Sn 125		2×10^{-4}
Tungsten (wolfram) (74)	W 181		4×10^{-3}
	W 187		7×10^{-4}
Vanadium (23)	V 48		3×10^{-4}

Rule .02(21)(a)

Element (Atomic Number)	Isotope	Column I Gas Concentration $\mu\text{Ci/ml}^1$	Column II Liquid and Solid Concentration $\mu\text{Ci/ml}^2$
Xenon (54)	Xe 131m	4×10^{-6}	
	Xe 133	3×10^{-6}	
	Xe 135	1×10^{-6}	
Ytterbium (70)	Yb 175		1×10^{-3}
Yttrium (39)	Y 90		2×10^{-4}
	Y 91m		3×10^{-2}
	Y 91		3×10^{-4}
	Y 92		6×10^{-4}
	Y 93		3×10^{-4}
Zinc (30)	Zn 65		1×10^{-3}
	Zn 69m		7×10^{-4}
	Zn 69		2×10^{-2}
Zirconium (40)	Zr 95		6×10^{-4}
	Zr 97		2×10^{-4}
Beta- and/or gamma-emitting radioactive material not listed above with half-life less than 3 three years		1×10^{-10}	1×10^{-6}

Note: Many radioisotopes disintegrate into isotopes which are also radioactive. In expressing the concentrations in Schedule A, the activity stated is that of the parent isotope and takes into account the daughters. For purposes of (3)(a) where there is involved a combination of isotopes, the limit for the combination should be derived as follows:

Determine for each isotope in the product the ratio between the concentration present in the product and the exempt concentration established in Schedule A for the specific isotope when not in combination. The sum of such ratios may not exceed "1" (i.e., unity).

EXAMPLE: $\frac{\text{Concentration of Isotope A in Product}}{\text{Exempt concentration of Isotope A}} +$

$\frac{\text{Concentration of Isotope B in Product}}{\text{Exempt concentration of Isotope B}} < 1$

¹ Values are given only for those materials normally used as gases.

² $\mu\text{Ci/gm}$ for solids.

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(b) Schedule B.

SCHEDULE B
EXEMPT QUANTITIES

Radioactive Material	Microcuries
Antimony-122 (Sb 122)	100
Antimony-124 (Sb 124)	10
Antimony-125 (Sb 125)	10
Arsenic-73 (As 73)	100
Arsenic-74 (As 74)	10
Arsenic-76 (As 76)	10
Arsenic-77 (As 77)	100
Barium-131 (Ba 131)	10
Barium-133 (Ba 133)	10
Barium-140 (Ba 140)	10
Bismuth-210 (Bi 210)	1
Bromine-82 (Br 82)	10
Cadmium-109 (Cd 109)	10
Cadmium-115m (Cd 115m)	10
Cadmium-115 (Cd 115)	100
Calcium-45 (Ca 45)	10
Calcium-47 (Ca 47)	10
Carbon-11 (C 11)	10
Carbon-14 (C 14)	100
Cerium-141 (Ce 141)	100
Cerium-143 (Ce 143)	100
Cerium-144 (Ce 144)	1
Cesium-129 (Cs 129)	100
Cesium-131 (Cs 131)	1,000
Cesium-134m (Cs 134m)	100
Cesium-134 (Cs 134)	1
Cesium-135 (Cs 135)	10
Cesium-136 (Cs 136)	10
Cesium-137 (Cs 137)	10
Chlorine-36 (Cl 36)	10
Chlorine-38 (Cl 38)	10
Chromium-51 (Cr 51)	1,000
Cobalt-57 (Co 57)	100
Cobalt-58m (Co 58m)	10

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Radioactive Material
Microcuries

-	
Cobalt-58 (Co 58)	10
Cobalt-60 (Co 60)	1
Copper-64 (Cu 64)	100
Dysprosium-165 (Dy 165)	10
Dysprosium-166 (Dy 166)	100
Erbium-169 (Er 169)	100
Erbium-171 (Er 171)	100
Europium-152 (Eu 152) 9.2h	100
Europium-152 (Eu 152) 13 yr	1
Europium-154 (Eu 154)	1
Europium-155 (Eu 155)	10
Fluorine-18 (F 18)	1,000
Gadolinium-153 (Gd 153)	10
Gadolinium-159 (Gd 159)	100
Gallium-67 (Ga 67)	100
Gallium-72 (Ga 72)	10
Germanium-68 (Ge 68)	10
Germanium-71 (Ge 71)	100
Gold-195 (Au 195)	10
Gold-198 (Au 198)	100
Gold-199 (Au 199)	100
Hafnium-181 (Hf 181)	10
Holmium-166 (Ho 166)	100
Hydrogen-3 (H 3)	1,000
Indium-111 (In 111)	100
Indium-113m (In 113m)	100
Indium-114m (In 114m)	10
Indium-115m (In 115m)	100
Indium-115 (In 115)	10
Iodine-123 (I 123)	100
Iodine-125 (I 125)	1
Iodine-126 (I 126)	1
Iodine-129 (I 129)	0.1
Iodine-131 (I 131)	1
Iodine-132 (I 132)	10
Iodine-133 (I 133)	1
Iodine-134 (I 134)	10
Iodine-135 (I 135)	10

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Radioactive Material
Microcuries

—	
Iridium-192 (Ir 192)	10
Iridium-194 (Ir 194)	100
Iron-52 (Fe 52)	10
Iron-55 (Fe 55)	100
Iron-59 (Fe 59)	10
Krypton-85 (Kr 85)	100
Krypton-87 (Kr 87)	100
Lanthanum-140 (La 140)	10
Lutetium-177 (Lu 177)	100
Manganese-52 (Mn 52)	10
Manganese-54 (Mn 54)	10
Manganese-56 (Mn 56)	10
Mercury-197m (Hg 197m)	100
Mercury-197 (Hg 197)	100
Mercury-203 (Hg 203)	10
Molybdenum-99 (Mo 99)	100
Neodymium-147 (Nd 147)	100
Neodymium-149 (Nd 149)	100
Nickel-59 (Ni 59)	100
Nickel-63 (Ni 63)	10
Nickel-65 (Ni 65)	100
Niobium-93m (Nb 93m)	10
Niobium-95 (Nb 95)	10
Niobium-97 (Nb 97)	10
Nitrogen-13 (N 13)	10
Osmium-185 (Os 185)	10
Osmium-191m (Os 191m)	100
Osmium-191 (Os 191)	100
Osmium-193 (Os 193)	100
Oxygen-15 (O 15)	10
Palladium-103 (Pd 103)	100
Palladium-109 (Pd 109)	100
Phosphorus-32 (P 32)	10
Platinum-191 (Pt 191)	100
Platinum-193m (Pt 193m)	100
Platinum-193 (Pt 193)	100
Platinum-197m (Pt 197m)	100
Platinum-197 (Pt 197)	100

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Radioactive Material
Microcuries

Polonium-210 (Po 210)	0.1
Potassium-42 (K 42)	10
Potassium-43 (K 43)	10
Praseodymium-142 (Pm 142)	100
Praseodymium-143 (Pr 143)	100
Promethium-147 (Pm 147)	10
Promethium-149 (Pm 149)	10
Rhenium-186 (Re 186)	100
Rhenium-188 (Re 188)	100
Rhodium-103m (Rh 103m)	100
Rhodium-105 (Rh 105)	100
Rubidium-81 (Rb 81)	10
Rubidium-86 (Rb 86)	10
Rubidium-87 (Rb 87)	10
Ruthenium-97 (Ru 97)	100
Ruthenium-103 (Ru 103)	10
Ruthenium-105 (Ru 105)	10
Ruthenium-106 (Ru 106)	1
Samarium-151 (Sm 151)	10
Samarium-153 (Sm 153)	100
Scandium-46 (Sc 46)	10
Scandium-47 (Sc 47)	100
Scandium-48 (Sc 48)	10
Selenium-75 (Se 75)	10
Silicon-31 (Si 31)	100
Silver-105 (Ag 105)	10
Silver-110m (Ag 110m)	1
Silver-111 (Ag 111)	100
Sodium-22 (Na 22)	10
Sodium-24 (Na 24)	10
Strontium-85 (Sr 85)	10
Strontium-89 (Sr 89)	1
Strontium-90 (Sr 90)	0.1
Strontium-91 (Sr 91)	10
Strontium-92 (Sr 92)	10
Sulphur-35 (S 35)	100
Tantalum-182 (Ta 182)	10
Technetium-96 (Tc 96)	10

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Radioactive Material
Microcuries

—	
Technetium-97m (Tc 97m)	100
Technetium-97 (Tc 97)	100
Technetium-99m (Tc 99m)	100
Technetium-99 (Tc 99)	10
Tellurium-125m (Te 125m)	10
Tellurium-127m (Te 127m)	10
Tellurium-127 (Te 127)	100
Tellurium-129m (Te 129m)	10
Tellurium-129 (Te 129)	100
Tellurium-131m (Te 131m)	10
Tellurium-132 (Te 132)	10
Terbium-160 (Tb 160)	10
Thallium-200 (Tl 200)	100
Thallium-201 (Tl 201)	100
Thallium-202 (Tl 202)	100
Thallium-204 (Tl 204)	10
Thulium-170 (Tm 170)	10
Thulium-171 (Tm 171)	10
Tin 113-(Sn 113)	10
Tin 125-(Sn 125)	10
Tungsten-181 (W 181)	10
Tungsten-185 (W 185)	10
Tungsten-187 (W 187)	100
Vanadium-48 (V 48)	10
Xenon-131m (Xe 131m)	1,000
Xenon-133 (Xe 133)	100
Xenon-135 (Xe 135)	100
Ytterbium-175 (Yb 175)	100
Yttrium-87 (Y 87)	10
Yttrium-88 (Y 88)	10
Yttrium-90 (Y 90)	10
Yttrium-91 (Y 91)	10
Yttrium-92 (Y 92)	100
Yttrium-93 (Y 93)	100
Zinc-65 (Zn 65)	10
Zinc-69m (Zn 69m)	100
Zinc-69 (Zn 69)	1,000
Zirconium-93 (Zr 93)	10

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Radioactive Material
Microcuries

Zirconium-95 (Zr 95)	10
Zirconium-97 (Zr 97)	10
Any radioactive material not listed above other than alpha- emitting radioactive material	0.1

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(c) Schedule C.

SCHEDULE C
LIMITS FOR BROAD LICENSES

Column I Radioactive Materials	Column II Curies	Curies
Antimony-122 (Sb 122)	1	0.01
Antimony-124 (Sb 124)	1	0.01
Antimony-125 (Sb 125)	1	0.01
Arsenic-73 (As 73)	10	0.1
Arsenic-74 (As 74)	1	0.01
Arsenic-76 (As 76)	1	0.01
Arsenic-77 (As 77)	10	0.1
Barium-131 (Ba 131)	10	0.1
Barium-140 (Ba 140)	1	0.01
Beryllium-7 (Be 7)	10	0.1
Bismuth-210 (Bi 210)	0.1	0.001
Bromine-82 (Br 82)	10	0.1
Cadmium-109 (Cd 109)	1	0.01
Cadmium-115m (Cd 115m)	1	0.01
Cadmium-115 (Cd 115)	10	0.1
Calcium-45 (Ca 45)	1	0.01
Calcium-47 (Ca 47)	10	0.1
Carbon-14 (C 14)	100	1.0
Cerium-141 (Ce 141)	10	0.1
Cerium-143 (Ce 143)	10	0.1
Cerium-144 (Ce 144)	0.1	0.001
Cesium-131 (Cs 131)	100	1.0
Cesium-134m (Cs 134m)	100	1.0
Cesium-134 (Cs 134)	0.1	0.001
Cesium-135 (Cs 135)	1	0.01
Cesium-136 (Cs 136)	10	0.1
Cesium-137 (Cs 137)	0.1	0.001
Chlorine-36 (Cl 36)	0.01	0.001
Chlorine-38 (Cl 38)	100	1.0
Chromium-51 (Cr 51)	100	1.0
Cobalt-57 (Co 57)	10	0.1
Cobalt-58m (Co 58m)	100	1.0
Cobalt-58 (Co 58)	1	0.01

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Column I Radioactive Materials	Column II	Curies	Curies
Cobalt-60 (Co 60)		0.1	0.001
Copper-64 (Cu 64)		10	0.1
Dysprosium-165 (Dy 165)		100	1.0
Dysprosium-166 (Dy 166)		10	0.1
Erbium-169 (Er 169)		10	0.1
Erbium-171 (Er 171)		10	0.1
Europium-152 (Eu 152) 9.2h		10	0.1
Europium-152 (Eu 152) 13 yr		0.1	0.001
Europium-154 (Eu 154)		0.1	0.001
Europium-155 (Eu 155)		1	0.01
Fluorine-18 (F 18)		100	1.0
Gadolinium-153 (Gd 153)		1	0.01
Gadolinium-159 (Gd 159)		10	0.1
Gallium-72 (Ga 72)		10	0.1
Germanium-71 (Ge 71)		100	1.0
Gold-198 (Au 198)		10	0.1
Gold-199 (Au 199)		10	0.1
Hafnium-181 (Hf 181)		1	0.01
Holmium-166 (Ho 166)		10	0.1
Hydrogen-3 (H 3)		100	1.0
Indium-113m (In 113m)		100	1.0
Indium-114m (In 114m)		1	0.01
Indium-115m (In 115m)		100	1.0
Indium-115 (In 115)	1		0.01
Iodine-125 (I 125)		0.1	0.001
Iodine-126 (I 126)		0.1	0.001
Iodine-129 (I 129)		0.1	0.001
Iodine-131 (I 131)		0.1	0.001
Iodine-132 (I 132)		10	0.1
Iodine-133 (I 133)		1	0.01
Iodine-134 (I 134)		10	0.1
Iodine-135 (I 135)		1	0.01
Iridium-192 (Ir 192)		1	0.01
Iridium-194 (Ir 194)		10	0.1
Iron-55 (Fe 55)		10	0.1
Iron-59 (Fe 59)		1	0.01
Krypton-85 (Kr 85)		100	1.0

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Column I Radioactive Materials	Column II	Curies	Curies
Krypton-87 (Kr 87)		10	0.1
Lanthanum-140 (La 140)		1	0.01
Lutetium-177 (Lu 177)		10	0.1
Manganese-52 (Mn 52)		1	0.01
Manganese-54 (Mn 54)		1	0.01
Manganese-56 (Mn 56)		10	0.1
Mercury-197m (Hg 197m)		10	0.1
Mercury-197 (Hg 197)		10	0.1
Mercury-203 (Hg 203)		1	0.01
Molybdenum-99 (Mo 99)		10	0.1
Neodymium-147 (Nd 147)		10	0.1
Neodymium-149 (Nd 149)		10	0.1
Nickel-59 (Ni 59)		10	0.1
Nickel-63 (Ni 63)		1	0.01
Nickel-65 (Ni 65)		10	0.1
Niobium-93m (Nb 93m)		1	0.01
Niobium-95 (Nb 95)	1		0.01
Niobium-97 (Nb 97)	100		1.0
Osmium-185 (Os 185)		1	0.01
Osmium-191m (Os 191m)		100	1.0
Osmium-191 (Os 191)		10	0.1
Osmium-193 (Os 193)		10	0.1
Palladium-103 (Pd 103)		10	0.1
Palladium-109 (Pd 109)		10	0.1
Phosphorus-32 (P 32)		1	0.01
Platinum-191 (Pt 191)		10	0.1
Platinum-193m (Pt 193m)		100	1.0
Platinum-193 (Pt 193)		10	0.1
Platinum-197m (Pt 197m)		100	1.0
Platinum-197 (Pt 197)		10	0.1
Polonium-210 (Po 210)		0.01	0.0001
Potassium-42 (K 42)		1	0.01
Praseodymium-142 (Pm 142)		10	0.1
Praseodymium-143 (Pr 143)		10	0.1
Promethium-147 (Pm 147)	1		0.01
Promethium-149 (Pm 149)	10		0.1
Radium-226	0.01		0.0001

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Column I Radioactive Materials	Column II Curies	Curies
Rhenium-186 (Re 186)	10	0.1
Rhenium-188 (Re 188)	10	0.1
Rhodium-103m (Rh 103m)	1,000	0
Rhodium-105 (Rh 105)	10	0.1
Rubidium-86 (Rb 86)	1	0.01
Rubidium-87 (Rb 87)	1	0.01
Ruthenium-97 (Ru 97)	100	1.0
Ruthenium-103 (Ru 103)	1	0.01
Ruthenium-105 (Ru 105)	10	0.1
Ruthenium-106 (Ru 106)	0.1	0.001
Samarium-151 (Sm 151)	1	0.01
Samarium-153 (Sm 153)	10	0.1
Scandium-46 (Sc 46)	1	0.01
Scandium-47 (Sc 47)	10	0.1
Scandium-48 (Sc 48)	1	0.01
Selenium-75 (Se 75)	1	0.01
Silicon-31 (Si 31)	10	0.1
Silver-105 (Ag 105)	1	0.01
Silver-110m (Ag 110m)	0.1	0.001
Silver-111 (Ag 111)	10	0.1
Sodium-22 (Na 22)	0.1	0.001
Sodium-24 (Na 24)	1	0.01
Strontium-85m (Sr 85m)	1,000	10.0
Strontium-85 (Sr 85)	1	0.01
Strontium-89 (Sr 89)	1	0.01
Strontium-90 (Sr 90)	0.01	0.0001
Strontium-91 (Sr 91)	10	0.1
Strontium-92 (Sr 92)	10	0.1
Sulphur-35 (S 35)	10	0.1
Tantalum-182 (Ta 182)	1	0.01
Technetium-96 (Tc 96)	10	0.1
Technetium-97m (Tc 97m)	10	0.1
Technetium-97 (Tc 97)	10	0.1
Technetium-99m (Tc 99m)	100	1.0
Technetium-99 (Tc 99)	1	0.01
Tellurium-125m (Te 125m)	1	0.01
Tellurium-127m (Te 127m)	1	0.01

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Column I Radioactive Materials	Column II Curies	Curies
Tellurium-127 (Te 127)	10	0.1
Tellurium-129m (Te 129m)	1	0.01
Tellurium-129 (Te 129)	100	1.0
Tellurium-131m (Te 131m)	10	0.1
Tellurium-132 (Te 132)	1	0.01
Terbium-160 (Tb 160)	1	0.01
Thallium-200 (Tl 200)	10	0.1
Thallium-201 (Tl 201)	10	0.1
Thallium-202 (Tl 202)	10	0.1
Thallium-204 (Tl 204)	1	0.01
Thulium-170 (Tm 170)	1	0.01
Thulium-171 (Tm 171)	1	0.01
Tin 113-(Sn 113)	1	0.01
Tin 125-(Sn 125)	1	0.01
Tungsten-181 (W 181)	1	0.01
Tungsten-185 (W 185)	1	0.01
Tungsten-187 (W 187)	10	0.1
Vanadium-48 (V 48)	1	0.01
Xenon-131m (Xe 131m)	1,000	0
Xenon-133 (Xe 133)	100	1.0
Xenon-135 (Xe 135)	100	1.0
Ytterbium-175 (Yb 175)	10	0.1
Yttrium-90 (Y 90)	1	0.1
Yttrium-91 (Y 91)	1	0.1
Yttrium-92 (Y 92)	10	0.1
Yttrium-93 (Y 93)	1	0.01
Zinc-65 (Zn 65)	1	0.01
Zinc-69m (Zn 69m)	10	0.1
Zinc-69 (Zn 69)	100	1.0
Zirconium-93 (Zr 93)	1	0.01
Zirconium-95 (Zr 95)	1	0.01
Zirconium-97 (Zr 97)	1	0.01

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Column I Radioactive Materials	Column II Curies	Curies
Any radioactive material other than source material, or alpha-emitting radioactive material not listed above.	0.1	0.001

Rule .02(21)(d)

(d) Schedule D. Criteria Relating to Use of Financial Tests and Parent Company Guarantees for Providing Reasonable Assurance of Funds for Decommissioning.

1. Introduction. An applicant or licensee may provide reasonable assurance of the availability of funds for decommissioning based on obtaining a parent company guarantee that funds will be available for decommissioning costs and on a demonstration that the parent company passes a financial test. This schedule establishes criteria for passing the financial test and for obtaining the parent company guarantee.
2. Financial Test. To pass the financial test, the parent company must meet the criteria of either (21)(d)2.(i) or (21)(d)2.(ii) as follows:
 - (i) The parent company must have:
 - (I) 2 two of the following 3 three ratios: a ratio of total liabilities to net worth less than 2.0; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; and a ratio of current assets to current liabilities greater than 1.5;
 - (II) Net working capital and tangible net worth each at least 6 six times the current decommissioning cost estimates (or prescribed amount if a certification is used);
 - (III) Tangible net worth of at least \$10 million; and
 - (IV) Assets located in the United States amounting to at least 90 percent of total assets or at least 6 six times the current decommissioning cost estimates (or prescribed amount if a certification is used).
 - (ii) The parent company must have:
 - (I) A current rating for its most recent bond issuance of AAA, AA, A, or BBB as issued by Standard and Poor's or Aaa, Aa, A, or Baa as issued by Moody's;

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- (II) Tangible net worth each at least € six times the current decommissioning cost estimates for the total of all facilities or parts thereof (or prescribed amount if a certification is used);
 - (III) Tangible net worth of at least \$10 million; and
 - (IV) Assets located in the United States amounting to at least 90 percent of total assets or at least € six times the current decommissioning cost estimates for the total of all facilities or parts thereof (or prescribed amount if a certification is used).
- (iii) The parent company's independent certified public accountant must have compared the data used by the parent company in the financial test, which is derived from the independently-audited, year end financial statements for the latest fiscal year, with the amounts in such financial statement. In connection with that procedure the licensee shall inform the Department within 90 days of any matters coming to the auditor's attention which cause the auditor to believe that the data specified in the financial test should be adjusted and that the company no longer passes the test.
 - (iv) After the initial financial test, the parent company must repeat the passage of the test within 120 days after the close of each succeeding fiscal year. If the parent company no longer meets the requirements, as appropriate, of either (21)(d)2.(i) or (21)(d)2.(ii), the licensee must send notice to the Department of intent to establish alternate financial assurance as specified in the Department's Regulations. The notice must be sent by certified mail within 90 days after the end of the fiscal year for which the year end financial data show that the parent company no longer meets the financial test requirements. The licensee must provide alternate financial assurance within 120 days after the end of such fiscal year.
3. Parent Company Guarantee. The terms of a parent company guarantee which an applicant or licensee obtains must provide that:
- (i) The parent company guarantee shall remain in force unless the guarantor sends notice of cancellation by certified mail to

the licensee and the Department. (Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the licensee and the Rule

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Department, as evidenced by the return receipts);

- (ii) If the licensee fails to provide alternate financial assurance as specified in the Department's Regulations within 90 days after receipt by the licensee and the Department of a notice of cancellation of the parent company guarantee from the guarantor, the guarantor shall provide such alternative financial assurance in the name of the licensee;
- (iii) The parent company guarantee and financial test provisions must remain in effect until the Department has terminated the license; and
- (iv) If a trust is established for decommissioning costs, the trustee and trust must be acceptable to the Department. An acceptable trustee includes an appropriate State or Federal government agency or an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency.

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(e) Schedule E.

SCHEDULE E
 QUANTITIES OF RADIOACTIVE MATERIALS REQUIRING
 CONSIDERATION OF THE NEED FOR AN EMERGENCY PLAN
 FOR RESPONDING TO A RELEASE

Radioactive Material ¹	Release Fraction	Quantity (Curies)
Actinium-228	.001	4,000
Americium-241	.001	2
Americium-242	.001	2
Americium-243	.001	2
Antimony-124	.01	4,000
Antimony-126	.01	6,000
Barium-133	.01	10,000
Barium-140	.01	30,000
Bismuth-207	.01	5,000
Bismuth-210	.01	600
Cadmium-109	.01	1,000
Cadmium-113	.01	80
Calcium-45	.01	20,000
Californium-252	.001	9(20 mg)
Carbon-14	.01	50,000
	Non Co	
Cerium-141	.01	10,000
Cerium-144	.01	300
Cesium-134	.01	2,000
Cesium-137	.01	3,000
Chlorine-36	.5	100
Chromium-51	.01	300,000
Cobalt-60	.001	5,000
Copper-64	.01	200,000
Curium-242	.001	60
Curium-243	.001	3
Curium-244	.001	4
Curium-245	.001	2
Europium-152	.01	500
Europium-154	.01	400
Europium-155	.01	3,000
Germanium-68	.01	2,000

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Radioactive Material ¹	Release Fraction	Quantity (Curies)
Gadolinium-153	.01	5,000
Gold-198	.01	30,000
Hafnium-172	.01	400
Hafnium-181	.01	7,000
Holmium-166m	.01	100
Hydrogen-3	.5	20,000
Iodine-125	.5	10
Iodine-131	.5	10
Indium-114m	.01	1,000
Iridium-192	.001	40,000
Iron-55	.01	40,000
Iron-59	.01	7,000
Krypton-85	1.0	6,000,000
Lead-210	.01	8
Manganese-56	.01	60,000
Mercury-203	.01	10,000
Molybdenum-99	.01	30,000
Neptunium-237	.001	2
Nickel-63	.01	20,000
Niobium-94	.01	300
Phosphorus-32	.5	100
Phosphorus-33	.5	1,000
Polonium-210	.01	10
Potassium-42	.01	9,000
Promethium-145	.01	4,000
Promethium-147	.01	4,000
Ruthenium-106	.01	200
Samarium-151	.01	4,000
Scandium-46	.01	3,000
Selenium-75	.01	10,000
Silver-110m	.01	1,000
Sodium-22	.01	9,000
Sodium-24	.01	10,000
Strontium-89	.01	3,000
Strontium-90	.01	90
Sulfur-35	.5	900
Technetium-99	.01	10,000
Technetium-99m	.01	400,000

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Radioactive Material ¹	Release Fraction	Quantity (Curies)
Tellurium-127m	.01	5,000
Tellurium-129m	.01	5,000
Terbium-160	.01	4,000
Thulium-170	.01	4,000
Tin-13	.01	10,000
Tin-123	.01	3,000
Tin-126	.01	1,000
Titanium-44	.01	100
Vanadium-48	.01	7,000
Xenon-133	1.0	900,000
Yttrium-91	.01	2,000
Zinc-65	.01	5,000
Zirconium-93	.01	400
Zirconium-95	.01	5,000
Any other beta-/gamma-emitter	.01	10,000
Mixed fission products	.01	1,000
Contaminated equipment, beta/gamma	.001	10,000
Irradiated material, any form other than solid noncombustible	.01	1,000
Irradiated material, solid noncombustible	.001	10,000
Mixed radioactive waste, beta/gamma	.01	1,000
Packaged mixed waste, beta/gamma ²	.001	10,000
Any other alpha-emitter	.001	2
Contaminated equipment, alpha	.0001	20
Packaged waste, alpha ²	.0001	20

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- ¹ For combinations of radioactive materials listed above, consideration of the need for an emergency plan is required if the sum of the ratios of the quantity of each radioactive material authorized to the quantity listed for that material in Schedule E exceeds one.
- ² Waste packaged in Type B containers does not require an emergency plan.

Rule .02(21)(f)

(f) Schedule F

SCHEDULE F
QUANTITIES FOR USE WITH DECOMMISSIONING

Material	Microcurie ^{a/}
Americium-241	0.01
Antimony-122	100
Antimony-124	10
Antimony-125	10
Arsenic-73	100
Arsenic-74	10
Arsenic-76	10
Arsenic-77	100
Barium-131	10
Barium-133	10
Barium-140	10
Bismuth-210	1
Bromine-82	10
Cadmium-109	10
Cadmium-115m	10
Cadmium-115	100
Calcium-45	10
Calcium-47	10
Carbon-14	100
Cerium-141	100
Cerium-143	100
Cerium-144	1
Cesium-131	1,000
Cesium-134m	100
Cesium-134	1
Cesium-135	10
Cesium-136	10
Cesium-137	10
Chlorine-36	10
Chlorine-38	10
Chromium-51	1,000

^{a/} To convert μCi to kBq , multiply the μCi value by 37.

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QUANTITIES FOR USE WITH DECOMMISSIONING (Continued)

Material	Microcurie ^{a/}
Cobalt-58m	10
Cobalt-58	10
Cobalt-60	1
Copper-64	100
Dysprosium-165	10
Dysprosium-166	100
Erbium-169	100
Erbium-171	100
Europium-152 (9.2 h)	100
Europium-152 (13 yr)	1
Europium-154	1
Europium-155	10
Florine-18	1,000
Gadolinium-153	10
Gadolinium-159	100
Gallium-72	10
Germanium-71	0
Hafnium-181	10
Holmium-166	100
Hydrogen-3	1,000
Indium-113m	100
Indium-114m	10
Indium-115m	100
Indium-115	10
Iodine-125	1
Iodine-126	1
Iodine-129	0.1
Iodine-131	1
Iodine-132	10
Iodine-133	1
Iodine-134	10
Iodine-135	10
Iridium-192	10
Iridium-194	100

^{a/} To convert μCi to kBq , multiply the μCi value by 37.

Iron-55

100

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QUANTITIES FOR USE WITH DECOMMISSIONING (Continued)

Material	Microcurie ^{a/}
Iron-59	10
Krypton-85	100
Krypton-87	10
Lanthanum-140	10
Lutetium-177	100
Manganese-52	10
Manganese-54	10
Manganese-56	10
Mercury-197m	100
Mercury-197	100
Mercury-203	10
Molybdenum-99	100
Neodymium-147	100
Neodymium-149	100
Nickel-59	100
Nickel-63	10
Nickel-65	100
Niobium-93m	10
Niobium-95	10
Niobium-97	10
Osmium-185	10
Osmium-191m	100
Osmium-191	100
Osmium-193	100
Palladium-103	100
Palladium-109	100
Phosphorus-32	10
Platinum-191	100
Platinum-193m	100
Platinum-193	100
Platinum-197m	100
Platinum-197	100
Plutonium-239	0.01
Polonium-210	0.1

^{a/} To convert μCi to kBq , multiply the μCi value by 37.

Potassium-42

10

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QUANTITIES FOR USE WITH DECOMMISSIONING (Continued)

Material	Microcurie ^{a/}
Praseodymium-142	100
Praseodymium-143	100
Promethium-147	10
Promethium-149	10
Radium-226	0.01
Rhenium-186	100
Rhenium-188	100
Rhodium-103m	100
Rhodium-105	100
Rubidium-86	10
Rubidium-87	10
Ruthenium-97	100
Ruthenium-103	10
Ruthenium-105	10
Ruthenium-106	1
Samarium-151	10
Samarium-153	100
Scandium-46	10
Scandium-47	100
Scandium-48	10
Selenium-75	10
Silicon-31	100
Silver-105	10
Silver-110m	1
Silver-111	100
Sodium-22	1
Sodium-24	10
Strontium-85	10
Strontium-89	1
Strontium-90	0.1
Strontium-91	10
Strontium-92	10
Sulfur -35	100
Tantalum-182	10

^{a/} To convert μCi to kBq , multiply the μCi value by 37.

Technetium-96

10

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QUANTITIES FOR USE WITH DECOMMISSIONING (Continued)

Material Microcurie ^{a/}	
Technetium-97m	100
Technetium-97	100
Technetium-99m	100
Technetium-99	10
Tellurium-125m	10
Tellurium-127m	10
Tellurium-127	100
Tellurium-129m	10
Tellurium-129	100
Tellurium-131m	10
Tellurium-132	10
Terbium-160	10
Thallium-200	100
Thallium-201	100
Thallium-202	100
Thallium-204	10
Thorium (natural) ^{b/}	100
Thulium-170	10
Thulium-171	10
Tin-113	10
Tin-125	10
Tungsten-181	10
Tungsten-185	10
Tungsten-187	100
Uranium (natural) ^{c/}	100
Uranium-233	0.01
Uranium-234	0.01
Uranium-235	0.01
Vanadium-48	10
Xenon-131m	1,000
Xenon-133	100

^{a/} To convert μCi to kBq , multiply the μCi value by 37.

^{b/} Based on alpha disintegration rate of Th-232, Th-230 and their daughter products.

^{c/} Based on alpha disintegration rate of U-238, U-234, and U-235.

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QUANTITIES FOR USE WITH DECOMMISSIONING *(Continued)*Material
Microcurie^{a/}

Xenon-135	100
Ytterbium-175	100
Yttrium-90	10
Yttrium-91	10
Yttrium-92	100
Yttrium-93	100
Zinc-65	10
Zinc-69m	100
Zinc-69	1,000
Zirconium-93	10
Zirconium-95	10
Zirconium-97	10
Any alpha emitting radionuclide not listed above or mixtures of alpha emitters of unknown composition.	0.01
Any radionuclide other than alpha emitting radionuclides, not listed above or mixtures of beta emitters of unknown composition.	0.10

^{a/} To convert μCi to kBq , multiply the μCi value by 37.

Rule .02(21)(g)

- (g) Schedule G. Criteria Relating to Use of Financial Tests and Self Guarantees for Providing Reasonable Assurance of Funds for Decommissioning.

1. Introduction

An applicant or licensee may provide reasonable assurance of the availability of funds for decommissioning based on furnishing its own guarantee that funds will be available for decommissioning costs and on a demonstration that the company passes the financial test of (21)(g)2. The terms of the self-guarantee are in (21)(g)3. This schedule establishes criteria for passing the financial test for the self guarantee and establishes the terms for a self-guarantee.

2. Financial Test

- (i) To pass the financial test, a company must meet all of the following criteria:

- (I) Tangible net worth at least 40 ten times the total current decommissioning cost estimate for the total of all facilities or parts thereof (or the current amount required if certification is used) for all decommissioning activities for which the company is responsible as self-guaranteeing licensee and ~~as parent-guarantor.~~
- (II) Assets located in the United States amounting to at least 90 percent of total decommissioning cost estimate for the total of all facilities or parts thereof (or the current amount required if certification is used) for all decommissioning activities for which the company is responsible as self-guaranteeing licensee and ~~as parent-guarantor.~~
- (III) A current rating for its most recent bond issuance of AAA, AA, or A as issued by Standard and Poors (S&P), or Aaa, Aa, or A as issued by Moodys.

- (ii) To pass the financial test, a company must meet all of the following additional requirements:

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- (I) The company must have at least one class of equity securities registered under the Security Exchange Act of 1934.
 - (II) The company's independent certified public accountant must have compared the data used by the company in the financial test which is derived from the independently audited, year-end financial statements for the latest fiscal year, with the amounts in such financial statement. In connection with that procedure, the licensee shall inform the Department within 90 days of any matters coming to the attention of the auditor that cause the auditor to believe that the data specified in the financial test should be adjusted and that the company no longer passes the test.
 - (III) After the initial financial test, the company must repeat passage of the test within 90 days after the close of each succeeding fiscal year.
- (iii) If the licensee no longer meets the requirements of (21)(g)2.(i), the licensee must send immediate notice to the Department of its intent to establish alternate financial assurance as specified in the Department's regulations within 120 days of such notice.

3. Company Self-Guarantee

The terms of a self-guarantee which an applicant or licensee furnishes must provide that:

- (i) The guarantee will remain in force unless the licensee sends notice of cancellation by certified mail to the Department. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by the Department, as evidence by the return receipt.
- (ii) The licensee shall provide alternative financial assurance as specified in the Department's regulations within 90 days

following receipt by the Department of a notice of cancellation of the guarantee.

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- (iii) The guarantee and financial test provisions must remain in effect until the Department has terminated the license or until another financial assurance method acceptable to the Department has been put in effect by the licensee.
- (iv) The licensee will promptly forward to the Department and the licensee's independent auditor all reports covering the latest fiscal year filed by the licensee with the Securities and Exchange Commission pursuant to the requirements of Section 13 of the Securities and Exchange Act of 1934.
- (v) If, at any time, the licensee's most recent bond issuance ceases to be rated in any category of "A" or above by either Standard and Poors or Moodys, the licensee will provide notice in writing of such fact to the Department within 20 days after publication of the change by the rating service. If the licensee's most recent bond issuance ceases to be rated in any category of A or above by both Standard and Poors and Moodys, the licensee no longer meets the requirements of (21)(g)2.(i).
- (vi) The applicant or licensee must provide to the Department a written guarantee (a written commitment by a corporate officer) which states that the licensee will fund and carry out the required decommissioning activities or, upon issuance of an order by the Department, the licensee will set up and fund a trust in the amount of the current cost estimates for decommissioning.

Authority O.C.G.A. 31-13-1 et. seq; Ga. L. 1964, pp. 499, 507, 566-575, as amended (Georgia Radiation Control Act).