

PART A

GENERAL PROVISIONS

Sec. A.1 - Scope. Except as otherwise specifically provided, these regulations apply to all persons who receive, possess, use, transfer, own, or acquire any source of radiation; provided that nothing in these regulations shall apply to any person to the extent such person is subject to regulation by the Nuclear Regulatory Commission.^{1/}

Sec. A.2 - Definitions. As used in these regulations, these terms have the definitions set forth below. Additional definitions used only in a certain Part will be found in that Part.

"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 radioactive material, permitted in a Type A package. These values are either listed in Appendix A of Part T of these regulations, Table I, or may be derived in accordance with the procedure prescribed in Appendix A of Part T of these regulations.

"Absorbed dose" means the energy imparted by ionizing radiation per unit mass of irradiated material. The units of absorbed dose are the gray (Gy) and the rad.

"Accelerator" means any machine capable of accelerating electrons, protons, deuterons, or other charged particles in a vacuum and of discharging the resultant particulate or other radiation into a medium at energies usually in excess of 1 MeV. For purposes of this definition, "particle accelerator" is an equivalent term.

"Accelerator-produced radioactive material" means any material made radioactive by a particle accelerator.

"Act" means [cite State Radiation Control Act].

"Activity" means the rate of disintegration or transformation or decay of radioactive material. The units of activity are the becquerel (Bq) and the curie (Ci).

"Adult" means an individual 18 or more years of age.

"Agency" means [cite appropriate State agency].

^{1/} Attention 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 and the Nuclear Regulatory Commission and to 10 CFR Part 150 of the Commission's regulations.

"Agreement State" means any State with which the Nuclear Regulatory Commission or the Atomic Energy Commission has entered into an effective agreement under subsection 274b. of the Atomic Energy Act of 1954, as amended (73 Stat. 689).

"Airborne radioactive material" means any radioactive material dispersed in the air in the form of dusts, fumes, particulates, mists, vapors, or gases.

"Airborne radioactivity area" means a room, enclosure, or area in which airborne radioactive materials exist in concentrations:

- (1) In excess of the derived air concentrations (DAC's) specified in Appendix B, Table I of Part D of these regulations; or
- (2) 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.

"Airline respirator" (see "Supplied-air respirator (SAR)").

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

"As low as is reasonably achievable" (ALARA) means making every reasonable effort to maintain exposures to radiation as far below the dose limits in these regulations as is practical, consistent with the purpose for which the licensed or registered activity is undertaken, taking into account the state of technology, the economics of improvements in relation to 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.

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

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

"Background radiation" means radiation from cosmic sources, naturally occurring radioactive materials, (which has not been technologically enhanced) 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 or registrant. "Background radiation" does not include sources of radiation from radioactive materials regulated by the Agency.

"Becquerel" (Bq) means the SI unit of activity. One becquerel is equal to 1 disintegration or transformation per second (dps or tps).

"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 these regulations, "radiobioassay" is an equivalent term.

"Brachytherapy" means a method of radiation therapy in which sealed sources are utilized to deliver a radiation dose at a distance of up to a few centimeters, by surface, intracavitary, or interstitial application.

"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;
- (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;
- (3) (i) Any discrete source of radium-226 that is produced, extracted, or converted after extraction, before, on, or after August 8, 2005, for use for a commercial, medical, or research activity; or
(ii) Any material that:
 - (a) Has been made radioactive by use of a particle accelerator; and
 - (b) Is produced, extracted, or converted after extraction, before, on, or after August 8, 2005, for use for a commercial, medical, or research activity; and
- (4) Any discrete source of naturally occurring radioactive material, other than source material, that:
 - (i) The United States Nuclear Regulatory Commission, in consultation with the Administrator of the Environmental Protection Agency, the Secretary of Energy, the Secretary of Homeland Security, and the head of any other appropriate Federal agency, determines would pose a threat similar to the threat posed by a discrete source of radium-226 to the public health and safety or the common defense and security; and
 - (ii) Before, on, or after August 8, 2005, is extracted or converted after extraction for use in a commercial, medical, or research activity.

"Calendar quarter" means not less than 12 consecutive weeks nor more than 14 consecutive weeks. The first calendar quarter of each year shall begin in January and subsequent calendar quarters shall be so arranged such that no day is included in more than one calendar quarter and no day in any one

year is omitted from inclusion within a calendar quarter. The method observed by the licensee or registrant for determining calendar quarters shall only be changed at the beginning of a year.

"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.

"CFR" means Code of Federal Regulations.

"Chelating agent" means amine polycarboxylic acids, hydroxycarboxylic acids, gluconic acid, and polycarboxylic acids.

"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.

"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.

"Committed effective dose equivalent" ($H_{E,50}$) is the sum of the products of the weighting factors (w_T) applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to each of these organs or tissues ($H_{E,50} = \sum w_T H_{T,50}$).

"Critical group" means the group of individuals reasonably expected to receive the greatest exposure to residual radioactivity for any applicable set of circumstances.

"Curie" means a unit of quantity of activity. One curie (Ci) is that quantity of radioactive material, which decays at the rate of $3.7E+10$ disintegrations or transformations per second (dps or tps).

"Deep dose equivalent" (H_d), which applies to external whole body exposure, means the dose equivalent at a tissue depth of 1 centimeter (1000 mg/cm^2).

"Demand respirator" means an atmosphere-supplying respirator that admits breathing air to the face piece only when a negative pressure is created inside the facepiece by inhalation

"Department of Energy" means the Department of Energy established by Public Law 95-91, August 4, 1977, 91 Stat. 565, 42 U.S.C. 7101 *et seq.*, to the extent that the Department exercises functions formerly vested in the Atomic Energy Commission, its Chairman, members, officers and components and transferred to the 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 re-transferred 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.)

"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.

"Discrete source" means a radionuclide that has been processed so that its concentration within a material has been purposely increased for use for commercial, medical, or research activities.

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

"Distinguishable from background" means that the detectable concentration of a radionuclide is statistically different from the background concentration of that radionuclide in the vicinity of the site or, in the case of structures, in similar materials using adequate measurement technology, survey, and statistical techniques.

"Dose" is a generic term that means absorbed dose, dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, total organ dose equivalent, or total effective dose equivalent. For purposes of these regulations, "radiation dose" is an equivalent term.

"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 sievert (Sv) and rem.

"Dose limits" means the permissible upper bounds of radiation doses established in accordance with these regulations. For purposes of these regulations, "limits" is an equivalent term.

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

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

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

"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.

"Exposure" means being exposed to ionizing radiation or to radioactive material.

"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 SI unit of exposure is the coulomb per kilogram (C/kg). See A.13 Units of Exposure and Dose for the special unit.^{*/}

"Exposure rate" means the exposure per unit of time, such as roentgen per minute and milliroentgen per hour.

"External dose" means that portion of the dose equivalent received from any source of radiation outside the body.

"Extremity" means hand, elbow, and arm below the elbow, foot, knee, and leg below the knee.

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

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

"Fit Test" means the use of a protocol to qualitatively evaluate the fit of a respirator on an individual.

"Former Atomic Energy Commission or Nuclear Regulatory Commission licensed facilities" means nuclear reactors, nuclear fuel reprocessing plants, uranium enrichment plants, or critical mass experimental facilities where Atomic Energy Commission or Nuclear Regulatory Commission licenses have been terminated.

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

"Gray" (Gy) means the SI unit of absorbed dose. One gray is equal to an absorbed dose of 1 joule per kilogram (100 rad).

"Hazardous waste" means those wastes designated as hazardous by the Environmental Protection Agency regulations in 40 CFR Part 261.

"Healing arts" means [cite appropriate State definition].

"Helmet" means a rigid respiratory inlet covering that also provides head protection against impact and penetration.

^{*/} States may wish to distinguish throughout their regulations, and to include a footnote here specifying a distinction, between the International Commission on Radiation Units and Measurements definition of exposure and the general use of exposure. The footnote could be similar to the following: "When not underlined as above [or indicated as 'exposure'(X)], the term 'exposure' has a more general meaning in these regulations. "

"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 1 mSv (0.1 rem) in 1 hour at 30 centimeters from any source of radiation or 30 centimeters from any surface that the radiation penetrates.

"Hood" means a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

"Human use" means the internal or external administration of radiation or radioactive material to human beings.

"Individual" means any human being.

"Individual monitoring" means the assessment of:

- (1) Dose equivalent (a) by the use of individual monitoring devices or (b) by the use of survey data; or
- (2) Committed effective dose equivalent (a) by bioassay or (b) 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 Part D.]

"Individual monitoring devices" means devices designed to be worn by a single individual for the assessment of dose equivalent. For purposes of these regulations, "personnel dosimeter" and "dosimeter" are equivalent terms. Examples of individual monitoring devices are film badges, thermoluminescence dosimeters (TLDs), pocket ionization chambers, optically stimulated luminescence (OSL) dosimeters and personal (lapel) air sampling devices.

"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 Agency.

"Instrument traceability" (for ionizing radiation measurements) means the ability to show that an instrument has been calibrated at specified time intervals using a national standard or a transfer standard. If a transfer standard is used, the calibration must be at a laboratory accredited by a program, which requires continuing participation in measurement quality assurance with the National Institute of Standards and Technology, or other equivalent national or international program.

"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.

"Internal dose" means that portion of the dose equivalent received from radioactive material taken into the body.

"Lens dose equivalent (LDE)" means the external exposure to the lens of the eye as the dose equivalent at a tissue depth of 0.3 centimeter (300 mg/cm^2).

"License" means a license issued by the Agency in accordance with the regulations adopted by the Agency.

"Licensed [or registered] material" means radioactive material received, possessed, used, transferred or disposed of under a general or specific license [or registration] issued by the Agency.

"Licensee" means any person who is licensed by the Agency in accordance with these regulations and the Act.

"Licensing State" means any State, which has been finally designated as such by the Conference of Radiation Control Program Directors, Inc., which reviews state regulations to establish equivalency with the Suggested State Regulations and ascertains whether a State has an effective program for control of natural occurring or accelerator produced radioactive material (NARM). The Conference will designate as Licensing States those states with regulations for control of radiation relating to, and an effective program for, the regulatory control of NARM.

"Limits" [See "Dose limits"].

"Loose-fitting facepiece" means a respiratory inlet covering that is designed to form a partial seal with the face.

"Lost or missing source of radiation" means licensed [or registered] source of radiation whose location is unknown. This definition includes, but is not limited to, radioactive material that has been shipped but has not reached its planned destination and whose location cannot be readily traced in the transportation system.

"Major processor" means a user processing, handling, or manufacturing radioactive material exceeding Type A quantities as unsealed sources or material, or exceeding 4 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 T.2 of these regulations.

"Member of the public" means an individual except when that individual is receiving an occupational dose.

"Minor" means an individual less than 18 years of age.

"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 these regulations, "radiation monitoring" and "radiation protection monitoring" are equivalent terms.

"NARM" means any naturally occurring or accelerator-produced radioactive material. It does not include byproduct, source, or special nuclear material.

“Nationally tracked source” is a sealed source containing a quantity equal to or greater than Category 1 or Category 2 levels of any radioactive material listed in Appendix E of Part D. In this context a sealed source is defined as radioactive material that is sealed in a capsule or closely bonded, in a solid form and which is not exempt from regulatory control. It does not mean material encapsulated solely for disposal, or nuclear material contained in any fuel assembly, subassembly, fuel rod, or fuel pellet. Category 1 nationally tracked sources are those containing radioactive material at a quantity equal to or greater than the Category 1 threshold. Category 2 nationally tracked sources are those containing radioactive material at a quantity equal to or greater than the Category 2 threshold but less than the Category 1 threshold.

"Natural radioactivity" means radioactivity of naturally occurring nuclides.

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

"NORM" means any naturally occurring radioactive material. It does not include accelerator produced, byproduct, source, or special nuclear material.

"Nuclear Regulatory Commission" means the Nuclear Regulatory Commission or its duly authorized representatives.

"Occupational dose" means the dose received by an individual in the course of employment in which the individual's assigned duties involve exposure to radiation or to radioactive material from licensed and unlicensed sources of radiation, whether in the possession of the licensee, registrant, or other person. Occupational dose does not include doses received: from background radiation, or from any medical administration the individual has received, from exposure to individuals administered radioactive material and released in accordance with G.40, from voluntary participation in medical research programs, or as a member of the public.

"Package" means the packaging together with its radioactive contents as presented for transport.

"Particle accelerator" [See "Accelerator"].

"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 agency of the foregoing [, but shall not include federal government agencies].

"Personnel monitoring equipment" [See "Individual monitoring devices"].

"Pharmacist" means [an individual licensed by this State to compound and dispense drugs, prescriptions, and poisons or cite appropriate State definition].

"Physician" means [cite appropriate State definition].

"Positive pressure respirator" means a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

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

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

"Protective apron" means an apron made of radiation-attenuating materials used to reduce exposure to radiation.

"Public dose" means the dose received by a member of the public from exposure to sources of radiation released by the licensee or registrant, or to any other source of radiation under the control of the licensee or registrant.. Public dose does not include occupational dose, or doses received from background radiation, from any medical administration the individual has received, from exposure to individuals administered radioactive material and released in accordance with G.40 of these regulations, or from voluntary participation in medical research programs.

"Pyrophoric material" means any liquid that ignites spontaneously in dry or moist air at or below 130 degrees F (54.4 degrees C) or 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.

["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 the American Board of Medical 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.]

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

"Quality factor" (Q) means the modifying factor, listed in Tables I and II of A.13, that is used to derive dose equivalent from absorbed dose.

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

"Rad" means the special unit of absorbed dose. One rad is equal to an absorbed dose of 100 erg per gram or 0.01 joule per kilogram (0.01 gray).

"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 these regulations, ionizing radiation is an equivalent term. Radiation, as used in these regulations, does not include non-ionizing radiation, such as radiowaves or microwaves, visible, infrared, or ultraviolet light.

"Radiation area" means any area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 0.05 mSv (0.005 rem) in 1 hour at 30 centimeters from the source of radiation or from any surface that the radiation penetrates.

"Radiation dose" [See "Dose"].

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

"Radiation safety officer" means an individual who has the knowledge and responsibility to apply appropriate radiation protection regulations and has been assigned such responsibility by the licensee or registrant.

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

"Radioactivity" means the transformation of unstable atomic nuclei by the emission of radiation.

"Radiobioassay" [See "Bioassay"].

"Registrant" means any person who is registered with the Agency and is legally obligated to register with the Agency pursuant to these regulations and the Act.

"Registration" means registration with the Agency in accordance with the regulations adopted by the Agency.

"Regulations of the Department of Transportation" means the regulations in 49 CFR Parts 100-189.

"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 Sv)

"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.

"Residual radioactivity" means radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee's control. This includes radioactivity from all licensed and unlicensed sources used by the licensee, but excludes background radiation. It also includes radioactive materials remaining at the site as a result of routine or accidental releases of radioactive materials at the site and previous burials at the site, even if those burials were made in accordance with the provisions of Part D of these regulations.

"Restricted area" means an area, access to which is limited by the licensee or registrant for the purpose of protecting individuals against undue risks from exposure to sources of radiation. 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.

"Roentgen" means the special unit of exposure. One roentgen (R) equals $2.58E-4$ coulombs per kilogram of air (see "Exposure" and A.13).

"Sealed source" means any container of radioactive material, which has been constructed in such a manner as to prevent the escape of any radioactive material.

"Sealed Source and Device Registry (SSD)" means the national registry that contains the registration certificates, maintained by the Nuclear Regulatory Commission (NRC), that summarize the radiation safety information for sealed sources and devices, and describe the licensing and use conditions approved for the product.

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

"Shallow dose equivalent" (H_s), which applies to the external exposure of the skin of the whole body or the skin of an extremity, is taken as the dose equivalent at a tissue depth of 0.007 centimeter (7 mg/cm^2).

"SI" means the abbreviation for the International System of Units.

"Sievert" means the SI unit of any of the quantities expressed as dose equivalent. The dose equivalent in sievert is equal to the absorbed dose in gray multiplied by the quality factor. (1 Sv = 100 rem)

"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 1 percent (0.05 percent) or more of uranium, thorium or any combination of uranium and thorium. Source material does not include special nuclear material.

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

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

"Source traceability" means the ability to show that a radioactive source has been calibrated either by the national standards laboratory of the National Institute of Standards and Technology, or by a laboratory which participates in a continuing measurement quality assurance program with National Institute of Standards and Technology or other equivalent national or international program.

"Special form radioactive material" means radioactive material that 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 millimeters (0.2 inch); and
- (3) It satisfies the test requirements specified by the Nuclear Regulatory Commission. A special form encapsulation designed in accordance with the 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.

"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 Agency declares by order to be special nuclear material after]^{**/} the Nuclear 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.

"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:

^{**/} This wording is provided for states that cannot automatically adopt changes made by the Nuclear Regulatory Commission.

"Supplied-air respirator (SAR)" means

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

an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

"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.

"Test" means the process of verifying compliance with an applicable regulation.

"These regulations" mean all parts of [cite appropriate rules or regulations].

"Tight-fitting facepiece" means a respiratory inlet covering that forms a complete seal with the face.

"Total effective dose equivalent" (TEDE) means the sum of the effective dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures) .

"Total organ dose equivalent" (TODE) means the sum of the deep dose equivalent and the committed dose equivalent to the organ receiving the highest dose as described in D.1107a.vi. of these regulations.

"Traceable to a National Standard" [See "Instrument traceability" or "Source traceability"].

"Unrefined and unprocessed ore" means ore in its natural form prior to any processing such as grinding, roasting, beneficiating, or refining.

"Unrestricted area" means an area, access to which is neither limited nor controlled by the licensee or registrant. For purposes of these regulations, "uncontrolled area" is an equivalent term.

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

"Very high radiation area" means an area, accessible to individuals, in which radiation levels from radiation sources external to the body could result in an individual receiving an absorbed dose in excess of 5 Gy (500 rad) in 1 hour at 1 meter from a source of radiation or 1 meter from any surface that the radiation penetrates.^{2/}

"Waste" means those low-level radioactive wastes containing source, special nuclear, or byproduct material that are acceptable for disposal in a land disposal facility. For the purposes of this definition, low-level radioactive waste means radioactive waste not classified as high-level

^{2/} At very high doses received at high dose rates, units of absorbed dose, gray and rad, are appropriate, rather than units of dose equivalent, sievert and rem.

radioactive waste, transuranic waste, spent nuclear fuel, or byproduct material as defined in paragraphs (2), (3), and (4) of the definition of Byproduct material set forth in this section.

"Waste handling licensees" mean persons licensed to receive and store radioactive wastes prior to disposal and/or persons licensed to dispose of radioactive waste.

"Week" means 7 consecutive days starting on Sunday.

"Whole body" means, for purposes of external exposure, head, trunk including male gonads, arms above the elbow, or legs above the knee.

"Worker" means an individual engaged in activities under a license or registration issued by the Agency and controlled by a licensee or registrant, but does not include the licensee or registrant.

"Working level" (WL) means any combination of short-lived radon daughters in 1 liter of air that will result in the ultimate emission of $1.3E+5$ MeV of potential alpha particle energy. The short-lived radon daughters of radon-222 are polonium-218, lead-214, bismuth-214, and polonium-214; and those of radon-220 are polonium-216, lead-212, bismuth-212, and polonium-212.

"Working level month" (WLM) means an exposure to 1 working level for 170 hours. 2,000 working hours per year divided by 12 months per year is approximately equal to 170 hours per month.

"Year" means the period of time beginning in January used to determine compliance with the provisions of these regulations. The licensee or registrant may change the starting date of the year used to determine compliance by the licensee or registrant provided that the change is made at the beginning of the year. If a licensee or registrant changes in a year, the licensee or registrant shall assure that no day is omitted or duplicated in consecutive years.

Exemptions from the Regulatory Requirements

Sec. A.3 - Exemptions.

- a. General Provision. The Agency may, upon application or upon its own initiative, grant such exemptions or exceptions from the requirements of these regulations as it determines are authorized by law and will not result in undue hazard to public health and safety or property.
- b. Department of Energy Contractors and Nuclear Regulatory Commission Contractors. Any Department of Energy contractor or subcontractor and any Nuclear Regulatory Commission contractor or subcontractor of the following categories operating within this State is exempt from these regulations to the extent that such contractor or subcontractor under his contract receives, possesses, uses, transfers, or acquires sources of radiation:
 - i. Prime contractors performing work for the 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;
- ii. Prime contractors of the Department of Energy performing research in, or development, manufacture, storage, testing, or transportation of, atomic weapons or components thereof;
 - iii. Prime contractors of the Department of Energy using or operating nuclear reactors or other nuclear devices in a United States Government-owned vehicle or vessel; and
 - iv. Any other prime contractor or subcontractor of the Department of Energy or of the Nuclear Regulatory Commission when the State and the Nuclear Regulatory Commission jointly determine:
 - (1) That the exemption of the prime contractor or subcontractor is authorized by law; and
 - (2) That, under the terms of the contract or subcontract, there is adequate assurance that the work thereunder can be accomplished without undue risk to the public health and safety.

General Regulatory Requirements

Sec. A.4 - Records. Each licensee and registrant shall maintain records showing the receipt, transfer, and disposal of all sources of radiation. Additional record requirements are specified elsewhere in these regulations.

Sec. A.5 - Inspections.

- a. Each licensee and registrant shall afford the Agency 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 and registrant shall make available to the Agency for inspection, upon reasonable notice, records maintained pursuant to these regulations.

Sec. A.6 - Tests. Each licensee and registrant shall perform upon instructions from the Agency, or shall permit the Agency to perform, such reasonable tests as the Agency 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 or registered sources of radiation.

Additional Regulatory Requirements

Sec. A.7 - Additional Requirements. The Agency may, by rule, regulation, or order, impose upon any licensee or registrant such requirements in addition to those established in these regulations as it deems appropriate or necessary to minimize danger to public health and safety or property.

Enforcement Requirements

Sec. A.8 - Violations. An injunction or other court order may be obtained prohibiting any violation of any provision of the Act or any regulation or order issued thereunder. Any person who willfully violates any provision of the Act or any regulation or order issued thereunder may be guilty of a [felony, misdemeanor or crime] and, upon conviction, may be punished by fine or imprisonment or both, as provided by law.

Sec. A.9 - Impounding. Sources of radiation shall be subject to impoundment pursuant to [cite appropriate reference.]

Sec. A.10 - Prohibited Uses.

- a. A hand-held fluoroscopic screen shall not be used with x-ray equipment unless it has been listed in the Registry of Sealed Source and Devices or accepted for certification by the Food and Drug Administration, Center for Devices and Radiological Health.
- b. A shoe-fitting fluoroscopic device shall not be used.

[Interpretations]

[Sec. A.11 - Interpretations. Except as specifically authorized by the Agency in writing, no interpretation of these regulations by an officer or employee of the Agency other than a written interpretation by the legal counsel will be recognized to be binding upon the Agency.]

Communications

Sec. A.12 - Communications. All communications and reports concerning these regulations, and applications filed thereunder, should be addressed to the Agency at its office located at [insert appropriate address.]

Sec. A.13 - Units of Exposure and Dose.

- a. As used in these regulations, the unit of exposure is the coulomb per kilogram (C/kg) of air. One roentgen is equal to 2.58E-4 coulomb per kilogram of air.
- b. As used in these regulations, the units of dose are:
- i. Gray (Gy) is the SI unit of absorbed dose. One gray is equal to an absorbed dose of 1 joule per kilogram (100 rad).
 - ii. Rad is the special unit of absorbed dose. One rad is equal to an absorbed dose of 100 erg per gram or 0.01 joule per kilogram. (0.01 Gy)
 - iii. 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)
 - iv. Sievert is the SI unit of any of the quantities expressed as dose equivalent. The dose equivalent in sievert is equal to the absorbed dose in gray multiplied by the quality factor. (1 Sv = 100 rem)
- c. As used in these regulations, 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

^{a/} Absorbed dose in gray equal to 1 Sv or the absorbed dose in rad equal to 1 rem.

- 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 A.13c., 0.01 Sv (1 rem) of neutron radiation of unknown energies may, for purposes of these regulations, 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 or registrant 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.

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)			
2.5E-8	2	980E+6	980E+8
1E-7	2	980E+6	980E+8
1E-6	2	810E+6	810E+8
1E-5	2	810E+6	810E+8
1E-4	2	840E+6	840E+8
1E-3	2	980E+6	980E+8
1E-2	2.5	1010E+6	1010E+8
1E-1	7.5	170E+6	170E+8
5E-1	11	39E+6	39E+8
1	11	27E+6	27E+8
2.5	9	29E+6	29E+8
5	8	23E+6	23E+8
7	7	24E+6	24E+8
10	6.5	24E+6	24E+8
14	7.5	17E+6	17E+8
20	8	16E+6	16E+8
40	7	14E+6	14E+8
60	5.5	16E+6	16E+8
1E+2	4	20E+6	20E+8
2E+2	3.5	19E+6	19E+8
3E+2	3.5	16E+6	16E+8
4E+2	3.5	14E+6	14E+8

^{a/} Value of quality factor (Q) at the point where the dose equivalent is maximum in a 30-centimeter diameter cylinder tissue-equivalent phantom.

^{b/} Monoenergetic neutrons incident normally on a 30-centimeter diameter cylinder tissue-equivalent phantom.

Sec. A.14 - Units of Activity. For purposes of these regulations, 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 (dps or tps).
- b. One curie (Ci) = $3.7\text{E}+10$ disintegrations or transformations per second (dps or tps) = $3.7\text{E}+10$ becquerel (Bq) = $2.22\text{E}+12$ disintegrations or transformations per minute (dpm or tpm).

2021

RATIONALE

PART A

GENERAL PROVISIONS

Background and History.

Part A of the Conference of Radiation Control Program Directors (CRCPD), Suggested State Regulations (SSR) was last revised in 2003. Since then, there have been amendments to definitions made to 10 CFR 20. This revision to Part A incorporates the changes to 10 CFR 20 and is intended to make Part A compatible with 10 CFR 20.

The referenced RATS documents can be found at https://scp.nrc.gov/rss_regamendents.html

Specific Provisions.

A.2 Byproduct Material	Revised definition. (RATS 2007-3)
A.2 Discrete Source	Added definition. (RATS 2007-3)
A.2 Nationally Tracked Source	Added definition. (RATS 2006-3)
A.2 Occupational Dose	Inserted reference to G.40
A.2 Public Dose	Inserted reference to G.40
A.2 Shallow dose equivalent	Revised definition. (RATS 2002-1)
A.2 Total effective dose equivalent	Revised definition. (RATS 2008-1)
A.2 Waste	Revised definition. (RATS 2007-3)

**2003
RATIONALE FOR REVISIONS**

**PART A
GENERAL PROVISIONS**

Introduction

The Nuclear Regulatory Commission continues to revise its Standards for Protection Against Ionizing Radiation found in 10 CFR Part 20. The revisions incorporated in Part A of the *Suggested State Regulations for Control of Radiation* are as follows:

Compatibility Requirements

The revisions to Part 20 were published in the following Federal Register notices:

- 1: On July 13, 1995 (60 FR 36038) and became effective on August 15, 1995.
- 2: On January 29, 1997 (62 FR 4120) and became effective May 29, 1997.
- 3: On July 23, 1998 (63 FR 39477) and became effective October 26, 1998.
- 4: On October 7, 1999 (64 FR 54543) and became effective February 4, 2000.

The Nuclear Regulatory Commission considers the adoption of these regulations a matter of compatibility for all Agreement States. Compatibility designations are noted as a separate attachment to the draft Parts A, D, & J.

Other editorial changes consistent with the Conference of Radiation Control Program Directors, Inc., *Policies and Procedures for the Preparation and Publication of the Suggested State Regulations for Control of Radiation* will not specifically be noted in the rationale discussion for each section.

Specific Provisions

Sec. A.2 - Definitions.

“Background radiation” (revised). This definition has been revised to be consistent with the definition in the revised 10 CFR Part 20. It also has been revised to exclude Technologically Enhanced Naturally Occurring Materials (TENORM) from being considered in background radiation.

“Entrance or access point” (revised). This definition is consistent with the definition in the revised 10 CFR Part 20.

“High radiation area” (revised). This definition is consistent with the definition in the revised 10 CFR Part 20.

“Lens dose equivalent” (revised). This definition is consistent with the definition in the revised 10 CFR Part 20.

“Licensing state” (revised). This definition of licensing state was revised for additional clarification and had been recommended in the 1995 Matters for Future Consideration.

“Individual monitoring devices” (revised). This definition is consistent with the definition in the revised 10 CFR Part 20.

“Occupational dose” (revised). This definition is consistent with the definition in the revised 10 CFR Part 20.

"Public dose" (revised). This definition is consistent with the definition in the revised 10 CFR Part 20.

"Radiation safety officer" (revised). This definition of radiation safety officer was revised for additional clarification and had been recommended in the 1995 Matters for Future Consideration.

“Sealed source and device registry” new definition, a recommendation from the Part G working group

"Year" (revised). This definition of year was revised for additional clarification and had been recommended in the 1995 Matters for Future Consideration.

The following definitions are being added as a result of the new regulations found in Part D entitled “Respirator Protection and Controls to Restrict Internal Exposures,” (64 FR 54543, October 7, 1999 and 64 FR 55524, October 13, 1999), effective February 2, 2000:

“Air Purifying Respirator”; “Assigned Protection Factor”; “Atmosphere Supplying Respirator”; “Class”; “Demand Respirator”; Disposable Respirator”; “Fit Factor”; “Fit Test”; “Filtering Facepiece”; “Helmet”; “Hood”; “Loose Fitting Facepiece”; “Negative Pressure Respirator”; “Positive Pressure Respirator”; “Pressure Demand Respirator”; “Qualitative Fit Test”; “Quantitative Fit Test”; Self Contained Breathing Apparatus”; “Supplied Air Respirator”; “Tight Fitting Facepiece”; and “User Seal Check.”

Matters for Future Consideration

1. Presently, the Food and Drug Administration is considering replacing "exposure" with the term "air kerma" in the diagnostic x-ray system performance standard (21 CFR, Subchapter J). Air kerma is currently in use by the National Council on Radiation Protection and Measurements and international organizations. The Suggested State Regulations should be amended when the federal definition is amended.
2. The Working Group recommended that the definition of "waste" be referred to the Working Group for Part M to consider inclusion of NARM and NORM waste.

3. When Part U has been approved, the Working Group will revise the definition of "byproduct material."
4. The Working Group has decided to consider the following changes during 1994:

"Exposure" means either:*

the quotient of dQ divided 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. (See A.14 for the SI unit coulomb per kilogram (C/kg) and the special unit roentgen (R).); or

irradiation by ionizing radiation or radioactive material.

* The context makes clear which is the appropriate definition.
5. The Working Group will consider new definitions for the following:
industrial radiography,
qualified expert (e.g., Mammography Quality Standards Act of 1992 and American Association of Physicists in Medicine),
worker,
manufacturing
distribution
commercial distribution
processing
6. The Working Group is considering the consolidation of the Qualified Expert definitions in various Parts into Part A.
7. The Working Group will consider input from other SR workgroups to create an all encompassing document for all definitions found in the SSRCS's. This will enable a licensee to only have to go to one location to find a definition.
8. The working group will look at intravascular depending upon Part G requirements

**1995
RATIONALE FOR REVISIONS**

**PART A
GENERAL PROVISIONS**

Introduction

The Nuclear Regulatory Commission revised its Standards for Protection Against Ionizing Radiation found in 10 CFR Part 20. This revision incorporated updated scientific information and reflected changes in the basic philosophy of radiation protection. This revision to Part 20 is in conformance with the Presidential Radiation Protection Guidance to Federal Agencies for Occupational Exposure and the recommendations of national and international radiation protection advisory groups. The accompanying revision to Part D incorporates these changes to Part 20 into the *Suggested State Regulations for Control of Radiation*. See the Federal Register notice (56 FR 23360) for the details in the Statements of Consideration of the revision to Part 20. Definitions have been added, deleted or amended in Part A to be consistent with the revised Part D where the new or revised terms were used throughout the regulations.

The revision of Part 20 was published in the Federal Register on May 21, 1991 (56 FR 23360) and became effective on June 21, 1991. The Nuclear Regulatory Commission considers the adoption of these regulations a matter of compatibility for all Agreement States. By January 1, 1994, the Agreement States were expected to adopt and implement regulations that are compatible. Therefore, these changes to Part A are considered a matter of compatibility with the Agreement States. In addition, this revision includes changes published on December 8, 1992 (57 FR 57877).

Definitions from 10 CFR Part 20 have been revised to reflect the states' responsibilities for all sources of radiation and not only byproduct, source and special nuclear material. These changes will not be specifically noted for each definition. Changes in Part A of the *Suggested State Regulations for Control of Radiation* are as follows:

Specific Provisions

Sec. A.2 - Definitions.

"Absorbed dose" (same). This definition was in the previous version of the Part A as part of the definition of dose. It has been listed as a separate definition to be consistent with the revised Part 20.

"Accelerator" (new). This definition was previously listed under particle accelerator and was changed because the term accelerator is used more frequently than particle accelerator.

"Activity" (new). This definition of activity is consistent with the definition in 10 CFR Part 20.

"Adult" (new). This definition of adult is consistent with the definition in 10 CFR Part 20.

"Airborne radioactive material" (revised). This definition is consistent with the revised 10 CFR Part 20.

"Airborne radioactivity area" (revised). This definition is revised to reflect the new standards and tables of ALI and DAC found in the revised 10 CFR Part 20 and the revised Part D.

"As low as is reasonably achievable" (revised). This definition was originally in the text of D.1(b). It is now placed as a specific definition in Part A since it is used in Part D, G, and M and is listed as a specific definition in the revised 10 CFR Part 20.

"Background radiation" (new). This definition of background radiation is consistent with the definition in the revised 10 CFR Part 20.

"Becquerel" (new). The Working Group recommended listing the definition of becquerel as a separate definition in addition to A.14 in the text of the rule, as found in 10 CFR 20.1005 and the discussion in the previous A.12.

"Bioassay" (new). This definition of bioassay is consistent with the definition in the revised 10 CFR Part 20.

"Brachytherapy" (new). This definition was taken from Part G and entered into Part A because this term is also in D.401.

"Byproduct material" (revised). This definition was revised to reflect the current definition of byproduct material in the revised Part 20.

"Calendar quarter" (revised). This definition was revised to clarify when a licensee or registrant is permitted to change the beginning of calendar quarter.

"Collective dose" (new). This definition of collective dose is consistent with the definition in the revised 10 CFR Part 20.

"Committed dose equivalent" (new). This definition of committed dose equivalent is consistent with the definition in the revised 10 CFR Part 20.

"Committed effective dose equivalent" (new). This definition of committed effective dose equivalent is consistent with the definition in the revised 10 CFR Part 20.

"Curie" (revised). The Working Group recommended deletion of the discussion of the multiples of the curie.

"Deep dose equivalent" (new). This definition of deep dose equivalent is consistent with the definition in the revised 10 CFR Part 20.

"Department of Energy" (revised). This definition of Department of Energy was revised to be consistent with the definition in the revised 10 CFR Part 20.

"Dose" (revised). This definition was revised to be consistent with the definition in the revised 10 CFR Part 20. The term total organ dose equivalent was added because the term is used in Agency Form Y and Agency Form Z.

"Dose equivalent" (revised). This definition of dose equivalent was revised to be consistent with the definition in the revised 10 CFR Part 20.

"Dose commitment" (deleted). This definition has been deleted and replaced with the definition consistent with the revised 10 CFR Part 20.

"Dose limits" (new). This definition of dose limits is consistent with the definition in the revised 10 CFR Part 20.

"Effective dose equivalent" (new). This definition of dose equivalent is consistent with the definition in the revised 10 CFR Part 20.

"Embryo/fetus" (new). This definition of embryo/fetus is consistent with the definition in the revised 10 CFR Part 20.

"Entrance or access point" (new). This definition of entrance or access point is consistent with the definition in the revised 10 CFR Part 20; however, it has been broadened to cover other sources of radiation (e.g., x-ray diffraction units).

"Exposure" (new). This definition of exposure is consistent with the definition in the revised 10 CFR Part 20.

"External dose" (new). This definition of external dose is consistent with the definition in the revised 10 CFR Part 20.

"Extremity" (new). This definition of extremity is consistent with the definition in the revised 10 CFR Part 20.

"Eye dose equivalent" (new). This definition of eye dose equivalent is consistent with the definition in the revised 10 CFR Part 20.

"Generally applicable environmental radiation standards" (new). This definition of generally applicable environmental radiation standards is consistent with the definition in the revised 10 CFR Part 20.

"Gray" (new). The Working Group recommended listing the definition of gray as a separate definition in addition to A.13 in the text of the rule, as found in 10 CFR 20.1004 and the discussion in the previous A.12.

"High radiation area" (revised). This definition of high radiation area was revised to be consistent with the definition in the revised 10 CFR Part 20.

"Individual monitoring" (new). This definition of individual monitoring is consistent with the definition in the revised 10 CFR Part 20.

"Individual monitoring devices" (new). This definition of individual monitoring devices is consistent with the definition in the revised 10 CFR Part 20.

"Instrument traceability" (new). This definition of instrument traceability was added at the request of the Conference of Radiation Control Program Directors, Inc.'s Committee on Ionizing Radiation Measurements, G-2.

"Internal dose" (new). This definition of internal dose is consistent with the definition in the revised 10 CFR Part 20.

"Licensed [or registered] material" (new). This definition of licensed or registered material is consistent with the definition of licensed material in the revised 10 CFR Part 20. The phrase "[or registered]" was added for use by non-Agreement States.

"Limits" (deleted). Since this definition in the revised Part 20 refers to the term "dose limits," the Working Group deleted this definition, and added a clarifying statement to the definition of "dose limits" that, for purposes of these regulations these terms are equivalent.

"Lost or missing source of radiation" (new). This definition of lost or missing source of radiation is consistent with the definition of "Lost or missing licensed material" in the revised 10 CFR Part 20.

"Member of the public" (new). This definition of member of the public is consistent with the definition in the revised 10 CFR Part 20 (59 FR 5138, dated February 3, 1994).

"Minor" (new). This definition of minor is consistent with the definition in the revised 10 CFR Part 20.

"Monitoring" (new). This definition of monitoring is consistent with the definition in the revised 10 CFR Part 20.

"Nuclear Regulatory Commission" (new). This definition of Nuclear Regulatory Commission is consistent with the definition in the revised 10 CFR Part 20.

"Occupational dose" (revised). This definition of occupational dose was revised to be consistent with the definition in the revised 10 CFR Part 20.

"Person" (revised). This definition was revised to reflect the current language found in the Suggested State Legislation by including the phrase "but shall not include federal government agencies." This change was recommended by the Nuclear Regulatory Commission for those states that are pursuing an agreement with the Commission. However, the change is bracketed because states that exercise authority at federal installations for x-ray machines or technologists may wish to change this definition. Agreement States should coordinate any change in this definition with the Nuclear Regulatory Commission.

"Personnel monitoring equipment" (revised). The text of this definition has been deleted and a reference for the reader to see the revised Part A definition for "individual monitoring device" has been added.

"Pharmacist" (revised). This definition was revised in brackets to ensure use of the appropriate State definition.

"Protective apron" (new). This definition of protective apron was moved from Part F to Part A and the word absorbing was changed to attenuating.

"Public dose" (new). This definition of public dose is consistent with the definition in the revised 10 CFR Part 20.

"Pyrophoric liquid" (deleted). This definition was deleted and replaced by pyrophoric material.

"Pyrophoric material" (new). This definition of pyrophoric material was added to replace the definition of pyrophoric liquid. The term pyrophoric material is the term actually used in the regulations.

["Qualified expert"] (new). The definition of qualified expert was added as an optional definition. It had been recommended in the 1982 Matters for Future Consideration and the definition is consistent with its use in the Suggested State Regulations.

"Quality factor" (new). This definition of quality factor is consistent with the definition in the revised 10 CFR Part 20.

"Rad" (revised). The Working Group recommended that the regulations continue to list the definition of rad as a separate definition rather than only in the text of the rule as is found in 10 CFR 20.1004. The revised definition of rad is consistent with the definition in the revised 10 CFR Part 20.

"Radiation" (revised). This definition of radiation was revised to be consistent with the definition in the revised 10 CFR Part 20.

"Radiation area" (revised). This definition of radiation area was revised to be consistent with the definition in the revised 10 CFR Part 20.

"Radiation dose" (new). This definition of radiation dose was added with a reference for the reader to see the revised Part A definition for dose.

"Radiation machine" (revised). The Working Group recommended that this definition be revised to clarify the exception to radioactive material. The Working Group has replaced the phrase "which produce radiation only from radioactive material." with "devices with radioactive material as the only source of radiation."

"Radiation Safety Officer" (revised). The Working Group recommended changing "one" to "an individual" for clarity.

"Radiobioassay" (new). This definition of radiobioassay was added with a reference for the reader to see the revised Part A definition for bioassay.

"Rem" (revised). The Working Group recommended that the regulations continue to list the definition of rem as a separate definition in addition to A.13 in the text of the rule, as found in 10 CFR 20.1004. The revised definition of rem is consistent with the definition in the revised 10 CFR Part 20.

"Restricted area" (revised). This definition of restricted area was revised to be consistent with the definition in the revised 10 CFR Part 20 and also replaced "radiation and radioactive material" with "sources of radiation."

"Roentgen" (revised). The Working Group recommended that the regulations continue to list the definition of roentgen as a separate definition in addition to A.13 in the text of the rule.

"Sealed source" (revised). This definition of sealed source was revised as recommended by the Working Group.

"Shallow dose equivalent" (new). This definition of shallow dose equivalent is consistent with the definition in the revised 10 CFR Part 20.

"SI" (new). The Working Group recommended that the abbreviation SI be defined.

"Sievert" (new). The Working Group recommended listing the definition of sievert as a separate definition in addition to A.13 in the text of the rule, as found in 10 CFR 20.1004 and the discussion in the previous A.12.

"Source material" (revised). This definition of source material was revised to be consistent with the definition in the revised 10 CFR Part 20.

"Source traceability" (new). This definition of source traceability was added at the request of the Conference of Radiation Control Program Directors, Inc.'s Committee on Ionizing Radiation Measurements, G-2.

"Special nuclear material" (new). Although the Suggested State Regulations contains a definition for "special nuclear material in quantities not sufficient to form a critical mass," the Working Group recommended that the definition of special nuclear material as found in the revised Part 20 should be added to Part A. This definition of special nuclear material is consistent with the definition in the revised 10 CFR Part 20.

"Survey" (revised). This definition of survey was revised to be consistent with the definition in the revised 10 CFR Part 20.

"Total effective dose equivalent" (new). This definition of total effective dose equivalent is consistent with the definition in the revised 10 CFR Part 20.

"Total organ dose equivalent" (new). This definition of total organ dose equivalent is consistent with the definition in the Nuclear Regulatory Commission's revised Form 4, Form 5, and Regulatory Guide 8.7.

"Traceable to a national standard" (new). This definition of traceable to a national standard was added at the request of the Conference of Radiation Control Program Directors, Inc.'s Committee on Ionizing Radiation Measurements, G-2.

"Unrestricted area" (revised). This definition of unrestricted area was revised to be consistent with the definition in the revised 10 CFR Part 20. Also, a sentence was added to indicate that for purposes of these regulations, uncontrolled area had the same meaning as unrestricted area.

"Week" (new). This definition of week is consistent with the definition in the revised 10 CFR Part 20.

"Whole body" (new). This definition of whole body is consistent with the definition in the revised 10 CFR Part 20.

"Working level" (new). This definition of working level is consistent with the definition in the revised 10 CFR Part 20.

"Working level month" (new). This definition of working level month is consistent with the definition in the revised 10 CFR Part 20.

"Year" (new). This definition of year is consistent with the definition in the revised 10 CFR Part 20.

Sec. A.10 - Prohibited Uses (revised). As recommended in the eighth edition of the *Suggested State Regulations for Control of Radiation*, Part A, Matters for Future Consideration, language was developed to allow the licensed use of Lixiscopes and other devices approved by the appropriate regulatory agencies as listed in the Registry of Sealed Sources and Devices or certified by the Center for Devices and Radiological Health.

Sec. A.11 - Communications (renumbered). The Working Group renumbered A.11 to A.12.

Sec. A.11 - [Interpretations] (new). The Working Group recommended adding this optional section to conform with 10 CFR 20.1006.

Sec. A.12 - The International System of Units (SI) (deleted). This section as previously written for the eighth edition of the SSRCR has been deleted because the revised Part 20 allows the licensee to use either the special units or the SI units as long as the licensee is consistent and does not mix the units. The information that was in this section can be found in the definitions and in the new A.13 and A.14.

Sec. A.13 - Units of Exposure and Dose (new). This section corresponds to revised 10 CFR 20.1004, Units of radiation dose. The Working Group decided that the information present in 10 CFR 20.1004 was basic to the use of the regulations and that it should be presented in the general provisions found in Part A.

Sec. A.14 - Units of Activity (new). This section corresponds to revised 10 CFR 20.1005, Units of radioactivity. The Working Group decided that the information present in 10 CFR 20.1005 was basic to the

use of the regulations and that it should be presented in the general provisions found in Part A. The Working Group changed the title to use the term as defined.

Matters for Future Consideration

1. Presently, the Food and Drug Administration is considering replacing "exposure" with the term "air kerma" in the diagnostic x-ray system performance standard (21 CFR, Sub-chapter J). Air kerma is currently in use by the National Council on Radiation Protection and Measurements and international organizations. The Suggested State Regulations should be amended when the federal definition is amended.
2. The Working Group recommended that the definition for Licensing State be reexamined by the appropriate Conference of Radiation Control Program Directors, Inc.'s task force to ensure that the proper definition in light of the Conference policies is in place. See 6. below.
3. The Working Group recommended that the definition of "waste" be referred to the Working Group for Part M to consider inclusion of NARM and NORM waste.
4. When Part U has been approved, the Working Group will revise the definition of "byproduct material."
5. The Working Group has decided to consider the following changes during 1994:

"Exposure" means either:*

the quotient of dQ divided 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. (See A.14 for the SI unit coulomb per kilogram (C/kg) and the special unit roentgen (R).); or

irradiation by ionizing radiation or radioactive material.

* The context makes clear which is the appropriate definition.

"Licensing State" means any State which has been provisionally or finally designated as such by the Conference of Radiation Control Program Directors, Inc., which reviews state regulations to establish equivalency with the Suggested State Regulations and ascertains whether a State has an effective program for control of NARM. The Conference will designate as Licensing States those States with regulations for control of radiation relating to, and an effective program for, the regulatory control of NARM.

"Occupational dose" means the dose received by an individual in the course of employment in which the individual's assigned duties for the licensee or registrant involve exposure to sources of radiation. Occupational dose does not include dose received from background radiation, or as a patient from

medical practices, or from voluntary participation in medical research programs, or as a member of the public.

"Public dose" means the dose received by a member of the public from sources of radiation from licensed or registered operations. Public dose does not include occupational dose, or dose received from background radiation, or as a patient from medical practices, or from voluntary participation in medical research programs.

"Radiation safety officer" means an individual who has the knowledge and responsibility to apply appropriate radiation protection regulations and has been assigned such responsibility by the licensee or registrant.

"Year" means the period of time beginning in January used to determine compliance with the provisions of these regulations. The licensee or registrant may change the starting date of the year used to determine compliance by the licensee or registrant provided that the decision to make the change is made not later than December 31 of the previous year. If a licensee or registrant changes a year, the licensee or registrant shall assure no day is omitted or duplicated in consecutive years.

6. The Working Group will consider new definitions for the following:
 - emergency,
 - industrial radiography,
 - qualified expert (e.g., Mammography Quality Standards Act of 1992 and American Association of Physicists in Medicine), and
 - worker.

**1988
Rationale for Revisions**

**Part A
General Provisions**

Additional definitions have been added, or deleted with the addition of Part T. Certain definitions from Part M have been moved to Part A as the terms are used outside Part M. Changes in Part A of the Suggested State Regulations for Control of Radiation (SSRCR) for this 8th Edition are as follows:

A.2 Definitions

"A₁" and "A₂" (new). These definitions are new terms to replace transport groups. The U.S. Nuclear Regulatory Commission (NRC) revised 10 CFR Part 71, the regulations for the transportation of radioactive material, to make the regulations compatible with those of the International Atomic Energy Agency and thus with those of most major nuclear nations of the world. These regulations were published as a final rule in the Federal Register on August 5, 1983 (48 FR 35600) and became effective September 6, 1983. The proposed rule for these revised regulations was published in the Federal Register on August 17, 1979 (44 FR 48234).

"Chelating agent" (new). This definition is being moved from Part M to Part A as the term is used in Section D.311 of Part D.

"Explosive material" (new). This definition is being moved from Part M to Part A as the term is used in Section D.311 of Part D.

"Hazardous waste" (new). This definition is being moved from Part M to Part A as the term is used in Section D.311 of Part D.

"Licensing State" (rev.). The definition of Licensing State was revised to reflect the designation of a State as a Licensing State by the Conference of Radiation Control Program Directors, Inc. (CRCPD).

"NARM" and "Natural radioactivity" (clarification). A footnote was added for these definitions because "NARM" and "Natural radioactivity" as defined would include both discrete and diffused radioactive material. For the purpose of being recognized by the CRCPD as a Licensing State, it is the policy of the CRCPD to only address discrete sources of NARM.

"Package" (new). The definition of package is consistent with the definition in 10 CFR Part 71 and is used in both Part D and Part T. The NRC revised 10 CFR Part 71, the regulations for the transportation of radioactive material, to make the regulations compatible with those of the International Atomic Energy Agency and thus with those of most major nuclear nations of the world.

1988 Rationale for Part A

"Pyrophoric liquid" (new). This definition is moved from Part M to Part A of the SSRCR as the term applies to the provisions of Section D.311, and all of the definitions for Part D are included in Part A.

"Special form radioactive material" (new). The definition of "Special form" in the previous edition of the SSRCR has been deleted and this definition added to maintain compatibility with the NRC's regulations for the transportation of radioactive material in 10 CFR Part 71, as revised by the final rule published in the Federal Register on August 5, 1983 (48 FR 35600).

"Transport group" (deleted). The definition of transport group has been deleted to maintain compatibility with the NRC's regulations for transportation. The NRC revised 10 CFR Part 71, the regulations for the transportation of radioactive material, to make the regulations compatible with those of the International Atomic Energy Agency and thus with those of most major nuclear nations of the world. These regulations were published as a final rule in the Federal Register on August 5, 1983 (48 FR 35600) and became effective September 6, 1983.

"Waste" (new). This definition is being moved from Part M to Part A as the term is used in Section D.311 of Part D and in Part M. In addition, the definition has been revised to reflect the change with the passage of Public Law 99-240, the Low-Level Radioactive Waste Policy Amendments Act which became effective on January 15, 1986.

Appendix A (deleted). Same as rationale for "Transport group".

Appendix B (deleted). Same as rationale for "Transport group".

Matters for Future Consideration

1. There are several terms which need to be defined in Part A because they are used in more than one part of the SSRCR. The terms are as follows:
 - (a) Traceable to national standards
 - (b) Qualified expert
 - (c) Patient
2. Develop a list of abbreviations used in the SSRCR.
3. Consider revising Section A.10 on Prohibited Uses for clarification and consistency with current technology, including the licensing of lixiscopes and the need for more description in prohibitions.

**1974
Rationale for Revisions**

**Part A
General Provisions**

Changes from Part A of the 1970 Suggested State Regulations for Control of Radiation (SSRCR) are as follows:

Sec. A.2 Definitions. An additional sentence has been added to the introduction of this section: "Additional definitions used only in a certain part will be found in that Part". This reference will now apply to the definitions in the new Part H and to any other definitions that may be added later to other Parts as well as to those in Part E and Part F.

(a) "Accelerator-produced material" (New). Most states prefer to make an overall requirement in their regulations to license all radioactive material, but this definition may be needed in those states originally authorized by their enabling legislation to license only source, byproduct, and special nuclear material or in non-Agreement States where they do not have authority to control all radioactive material.

(i) "Curie" (Rev). The definition of millicurie (mCi) and the definition of microcurie (μ Ci) have been specified along with the definition of the special unit, "Curie". The presently accepted symbols for the Curie (Ci) and its submultiples (mCi and μ Ci) have been used in the definition (as recommended in S.U.N. Commission Report on Symbols, Units, and Nomenclature in Physics of the International Union of Pure and Applied Physics). In addition, the definition was changed to reflect the revision of the curie of natural uranium and thorium as published in effective form on June 28, 1974 (39 FR 23990), including the correction published July 11, 1974 (39 FR 25463).

(j) "Dose" (Rev). This was expanded to include and distinguish between absorbed dose and dose equivalent.

(k) "Exposure" (New). The definition of "exposure" is consistent with that in ICRU Report 19 (Radiation Quantities and Units). The same definition is used in Part F and in the Federal Standard on Diagnostic X-Ray Systems and Their Major Components. A footnote has been included suggesting a method for distinguishing between the ICRU definition of exposure and its use in a more general sense throughout the regulations.

(l) "Exposure Rate" (New). Refer to comments for Paragraph A.2(k) on "Exposure".

(q) "Inspection" (New). This definition was included to distinguish between surveys, including tests and measurements, conducted officially to determine compliance with the Agency requirements, etc., and those conducted on a nonofficial basis.

(r) "License" (Rev). This was revised to be consistent with the definition of registration and to provide flexibility

in the licensing of sources of radiation.

(s) "Licensee" (New). This term is used throughout the regulations and because of its significance in placing responsibility for compliance with appropriate provisions of the regulations, it has been defined.

(t) "Natural radioactivity" (New). Refers to comments under definition A.2(a), "Accelerator-produced material".

(w) "Particle accelerator" (New). The term "particle accelerator" has been defined broadly in order to include all of those radiation machines normally considered as particle accelerators and which the State Agency may wish to regulate, while excluding those radiation machines - e.g., medical diagnostic x-ray units - which would be covered in another part of the regulations.

(y) "Personnel monitoring equipment" (Rev). Thermoluminescent dosimeters were added to the examples of types of devices categorized as personnel monitoring equipment and "measuring the dose received" was changed to "estimating the dose received" in order to be more complete and accurate.

(z) "Pharmacist" (New). It was suggested that the term "pharmacist" be added to the list of definitions. This particular definition has been used by some States, but may need to be revised in certain states to be consistent with other acts and regulations in the State.

(aa) "Physician" (Rev). Some States and some organizations do not want a physician to dispense drugs. If a State wishes to include dispensing drugs as part of the practice of medicine, then prescribing drugs should also be included in their definition of a physician. Therefore, let each State cite its definition of a licensed physician.

(ab) "Rad" (Rev). This change in the definition of the "rad" was an attempt to clarify and eliminate the implication that the special unit, rad, applies only to tissue.

(af) "Radiation safety officer" (New). A definition of "Radiation safety officer" has been added since it is referred to in other Parts of the SSRCR.

(ag) "Radioactive material" (Rev). As suggested, the words "solid, liquid, or gas" were placed in parentheses as examples to the definition.

(ah) "Radioactivity" (New). This word was added to the definitions so that its meaning would be clear to all those who have need to use these regulations when adopted by a State.

(ai) "Registrant" (New). This word and the word "registration" were added to the regulations since it is the basis for regulatory control of radiation, especially machine-produced radiation, in many States.

(aj) "Registration" (New). Refer to comments under definition A.2(ai) on "Registrant".

(ak) "Regulations of the U.S. Department of Transportation" (New). This was included in the definitions so that the applicable parts of the DOT regulations would be specified when reference is made to them.

(ao) "Roentgen" (New). A definition of "Roentgen" has been added, so that the special unit for the quantity, "exposure", would be specified.

(as) "Special form" (New). This term is used in the Table of Exempt and Type A Quantities in the new Section D.207 of the revised SSRCR, and, therefore, needs to be defined. This definition, including Appendix B of this Part, is identical to that in 10 CFR Part 71.

(au) "Survey" (Rev). This is meant to clarify use of the word and to make a distinction between survey and inspection. Also, the fact that a pre- or post-operational survey can be made whereas an inspection can be conducted only in an operational status; and that any change in equipment, orientation, and operation would change the resulting interpretation of the survey. A survey is designed to determine potential as well as actual radiation hazards rather than evaluating radiation hazards.

(av) "Test" (New). This word is used in this Part and other Parts of these model State regulations and, therefore, needed to be defined. A test could be a part of a survey or an inspection, but in itself was not always complete.

(aw) "These regulations" (Rev). The words "mean all parts" and the words in brackets, "cite appropriate rules or regulations", were included as part of the definition of "these regulations" in place of listing each part separately.

(ax) "Transport group" (New). This term is used in the Table of Exempt and Type A Quantities in the new Section D.207 of the revised model State regulations and a definition needs to be specified. This definition including Appendix A of this Part is similar to that in 10 CFR Part 71.

(ba) "Worker" (New). This word is used throughout the new Part J, the provisions of which are comparable with those provided by the Department of Labor for inspections pursuant to the Occupational Safety and Health Act. Therefore, the word is defined here to make its meaning clear as used in Part J, the basic purpose of which is to provide options to workers concerning inspections of working conditions regulated by the states comparable to those afforded for working conditions regulated by the Department of Labor.

Sec. A.3 Exemptions

(b) "Carriers" (Rev). This paragraph was revised to show that freight forwarders, warehousemen, and private carriers are also included in the exemption, as well as common and contract carriers. The exemption from "these regulations" for the transport and storage of sources of radiation is dependent upon their being subject to the Department of Transportation's (DOT) or U.S. Postal Service's regulations. Those common, contract, and private carriers not subject to DOT or U.S. Postal Service regulations are made subject to applicable provisions of "these regulations". These changes are based on amendments to Title 10 CFR Parts 20, 30, 40,

70, and 71 which became effective on March 26, 1972 (Federal Register, Vol. 37, No. 38, Feb. 25, 1972, pages 3985-3986).

Sec. A.8 Violations. The word "crime" in this Section has been enlarged to include "felony, misdemeanor, or crime" in brackets so the State Agency can choose the appropriate word for their regulations depending upon the laws in that State.

Matters for Future Consideration

1. The definitions, A.2(n) "High radiation area" and A.2(ad) "Radiation area", should be considered for revision. The present wording regarding "a major portion of the body" may exclude relatively small radiation beams, some of very high intensity or exposure rate as in analytical x-ray equipment, from being classified as a "radiation area" or "high radiation area."
2. The definition, A.2(u) "Occupational dose", should be considered for revision and the term, "occupational exposure" should be considered for inclusion in the definitions in order to make the proper distinction between exposure and dose.
3. The definition, A.2(al) "Rem", should be considered for revision and could include an indication that the rem is the special unit for the quantity, dose equivalent.

1978 Rationale for Revisions

Part A General Provisions

Introduction

The changes made to Part A in this revision of the Suggested State Regulations for Control of Radiation (SSRCR) were mainly based on amendments to Federal standards; suggestions from the Conference of Radiation Control Program Directors, Inc. (CRCPD) Task Force; comments received; and editorial, format, and other changes made by the Technical Review Committee for clarification and consistency with other parts of the SSRCR. The "U.S. Atomic Energy Commission" throughout Part A was changed to the "U.S. Nuclear Regulatory Commission" (NRC) and/or the "U.S. Department of Energy", as appropriate, to conform to the Energy Reorganization Act of 1974 (Public Law 93-438) and the Department of Energy Organization Act (Public Law 95-91). In addition, definitions have been included in Part A to support the Licensing State concept for Naturally Occurring and Accelerator-Produced Radioactive Materials (NARM) incorporated into Part C, and the provisions on bonding and perpetual care of nuclear licensed activities developed by a CRCPD task force and incorporated into Paragraphs C.25(e) and (f). The specific changes from Part A of the 1974 SSRCR and their rationale are as indicated below.

Specific Provisions

A.1 Scope and Footnote. "U.S. Atomic Energy Commission" was changed to "NRC" in Section A.1 and in footnote 1/ in conformance with the Energy Reorganization Act of 1974 (Public Law 93-438). The information in parentheses in the footnote was deleted and "10 CFR" was inserted before "Part 150" so that the footnote now reads as follows:

"1/ Attention 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 and the NRC and to 10 CFR Part 150 of the NRC's regulations."

A.2 Definitions

A.2(a) "Accelerator-produced material." The definition of "Accelerator-produced material" was revised in response to a comment received on the 1974 revision of the SSRCR suggesting that the definition should be modified to include any material made radioactive by exposure to an external beam from a particle accelerator. Some members of the Technical Review Committee felt that "accelerator-produced material" included more than that made radioactive by exposure to the beam of a particle accelerator. The definition was thus revised by deleting "exposing it in" and now reads as follows:

(a) "Accelerator-produced material" means any material made radioactive by a particle accelerator.

A.2(d) "Agreement State." The definition of "Agreement State" was revised by adding "NRC" for those States signing an agreement after that Agency came into being through the Energy Reorganization Act of 1974, effective January 19, 1975. The revised definition is compatible with that in 10 CFR 30.4(c), 10 CFR 40.4(m), and 10 CFR 150.3(b). It presently reads as follows in the current revision of the SSRCR:

(d) "Agreement State" means any State with which the NRC 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).

A.2(i) "CFR." As "CFR" is used repeatedly throughout the SSRCR, it was decided that its meaning should be stated in the definitions as follows:

(i) "CFR" means Code of Federal Regulations.

A.2(k) "Depleted uranium." In September 1971, NL Industries, Inc., of Albany, New York, filed a petition for rule making with NRC (then AEC) to amend Part 40, "Licensing of Source Material," to exempt from licensing uranium contained in shielding for medical x-ray units, tool holders for vibration damping, and commercial products for mass volume applications. On January 10, 1975, the NRC published a notice of proposed rule making in the Federal Register. The proposed amendments to Part 40 established a general license for the possession and use of depleted uranium in industrial products for the purpose of providing a concentrated mass in a small volume. The amendments also set out requirements concerning the manufacture of such products. Because of the fact that in recent times there has been increasing demand for information on the distribution of radioactive material in widely distributed commercial, industrial, or consumer products, the NRC proposed to institute a registration program for these general licensees. The objectives of the registration requirement are: (1) to provide a means of identifying the general licensee, (2) to provide the Commission an opportunity to inform the general licensee of the terms and conditions of the general license upon first receipt of depleted uranium, and (3) to facilitate subsequent communication with the general licensee. In a July 11, 1975 letter to all Agreement States the NRC provided specific details on the registration program to the States. The NRC felt that for the registration program to be comprehensive, it would be desirable to have the States participate. No adverse comments were received from the States. The proposed amendments to the SSRCR, Section A.2, Paragraph C.21(d), and Paragraph C.28(m) therefore incorporate the equivalent to the NRC effective rule, dated January 3, 1977, including the terms and conditions of the general license, registration requirements, and manufacturing requirements. Because of the previous lack of adverse comments, it is expected that the Agreement States will adopt these amendments in their entirety. The definition of "Depleted uranium" in this revision of the SSRCR is identical with that in 10 CFR 40.4(o).

A.2(m) "Dose commitment." A new definition, "Dose commitment," was added in this revision of the SSRCR, as the term is used in Subdivision C.28(d)(1)(ii)(c). The definition is identical with that in 10 CFR 32.2(a).

A.2(p) "Former U.S. Atomic Energy Commission (AEC) or NRC licensed facilities." This definition was

added to complement the new provisions in Paragraphs C.25(e) and (f) of this revision of the SSRCR on "Bonding Requirements" and "Perpetual Care Requirements" developed by a CRCPD Task Force on Bonding and Perpetual Care of Nuclear Licensed Activities. See the "Report of the Task Force on Bonding and Perpetual Care of Nuclear Licensed Activities", pages 252-271, especially Appendix C (Suggested Changes to the SSRCR) on page 268, of the proceedings of the Seventh Annual National Conference on Radiation Control, held April 27 - May 2, 1975, in Hyannis, Massachusetts. The NRC is currently reevaluating its position with regard to decommissioning of nuclear facilities and radioactive residue disposal and as part of this reevaluation is considering various bonding proposals. Nothing in these suggested regulations should be interpreted as reflecting current or future NRC policy with regard to bonding and/or decommissioning.

A.2(x) "Licensing State." A new definition, "Licensing State," was added in this revision of the SSRCR. It was developed by the Part C (Licensing of Radioactive Material) Working Group as a basis for including the new Licensing State Concept regarding regulatory provisions for the manufacture, assembly, and distribution of NARM in that Part.

A.2(y) "Major processor." A new definition, "Major processor", was added to this revision of the SSRCR, as suggested by the CRCPD Task Force on Bonding and Perpetual Care of Nuclear Licensed Activities. (See the rationale for Paragraph A.2(p).)

A.2(z) "NARM." A new definition, "NARM", was added as an acronym for the longer "Naturally Occurring or Accelerator-Produced Radioactive Material", and to exclude source material. The use of "NARM" complements the inclusion of the Licensing State Concept in Part C and provides a more direct meaning when substituted for "radioactive material other than source, byproduct, or special nuclear material."

A.2(ac) "Ore refineries." A new definition, "Ore refineries," was added to this revision of the SSRCR, as suggested by the CRCPD Task Force on Bonding and Perpetual Care of Nuclear Licensed Activities. (See the rationale for Paragraph A.2(p).)

A.2(ag) "Pharmacist." The definition of "Pharmacist" was bracketed to indicate that States may add appropriate language based upon the codes within their State. The definition now reads as follows:

(ag) "Pharmacist" means [an individual licensed by this State to compound and dispense drugs, prescriptions, and poisons].

A.2(ar) "Regulations of the U.S. Department of Transportation." This definition was revised by deleting "14 CFR Part 103 and 46 CFR Part 146" and changing "49 CFR Parts 170-189" to "49 CFR Parts 100-189". The Department of Transportation (DOT) has consolidated the air, water, and surface transportation of hazardous materials regulations of the Department into one volume of the Code of Federal Regulations, 49 CFR Parts 100-189. In Part II of the Federal Register of April 15, 1976 (41 FR 15972), the DOT published a recodification of their regulations resulting from incorporation of the U. S. Coast Guard Regulations, 46 CFR Part 146, and Federal Aviation Administration Regulations, 14 CFR Part 103, into 49 CFR Parts 170-177. This definition was revised to reflect this new codification. The definition in this revision of the SSRCR now

reads as follows:

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

A.2(bf) "U.S. Department of Energy." A definition for the "U.S. Department of Energy" (DOE) was added in this revision of the SSRCCR to reflect certain functions transferred to this Agency by the DOE Organization Act (Public Law 95-91). As the DOE has broad responsibilities, this definition is intended to specify that when "U.S. Department of Energy" is used in these regulations it refers only to the exercise of those functions formerly vested in the U.S. Atomic Energy Commission and transferred to the U.S. Energy Research and Development Administration by the Energy Reorganization Act of 1974 (Public Law 93-438) and later retransferred to the DOE by the DOE Organization Act (Public Law 95-91).

A.2(bi) "Waste handling licensees." A new definition, "Waste handling licensees" was added to this revision of the SSRCCR, as suggested by the CRCPD Task Force on Bonding and Perpetual Care of Nuclear Licensed Activities. (See the rationale for A.2(p).)

A.3 Exemptions

A.3(c) U.S. Department of Energy Contractors and NRC Contractors. This paragraph was revised in April 1975 by changing U.S. Atomic Energy Commission to the U.S. Energy Research and Development Administration (ERDA) and/or the NRC in view of the Energy Reorganization Act of 1974 (Public Law 93-438). Since then, the DOE Organization Act (Public Law 95-91) has transferred the functions of ERDA to the DOE and Paragraph A.3(c) has been revised to reflect that new organization.

A.8 Violations. In the second sentence of Section A.8 on Violations, the words "felony, misdemeanor or crime" were bracketed in this revision of the SSRCCR in order to indicate that the States may add appropriate language based upon the codes within their State.

Matters for Future Consideration

1. It was suggested that Section A.1 on Scope should be modified to indicate that the scope of these regulations is limited to sources of ionizing radiation.
2. In the next revision of the SSRCCR, it is suggested that definitions be included for "brachytherapy," "brachytherapy source," and "teletherapy," especially for use in conjunction with Part G on Use of

Sealed Radioactive Sources in the Healing Arts.

3. It is suggested that the working groups for Part A and Part I consider the possibility of defining "calibration" as used in Paragraph I.11(h) and other provisions for inclusion in the next revision of the SSRCR.
4. The working groups for Part A, Part F, and Part I should consider developing a definition of "interlock" related to its use in Part F, Part I, and in other parts for the next revision of the SSRCR (note definition of "interlock" in Section F.2 of the SSRCR).
5. The definition in Paragraph A.2(be) on "Transport group" indicates in subparagraph (1) that any radionuclide not specifically listed in one of the groups in Appendix A shall be assigned to one of the groups in accordance with the table shown there. It was suggested that a footnote should be included on each page of the Part A Appendix A (Transport Grouping of Radionuclides) stating that if a radionuclide is not listed in the appendix above, one should refer to the table in Paragraph A.2(be) for determining the transport group to which the radionuclide belongs.
6. The Technical Review Committee indicated that a system whereby the actual names of the tables would be different for the various Parts should be considered (e.g., appendix would be unique to a given Part).

**1982
Rationale for Revisions**

**Part A
General Provisions**

Changes in Part A of the 1978 Edition of the Suggested State Regulations for Control of Radiation (SSRCR) for this 1982 Edition are as follows:

A.2 Definitions

General. The alpha designation for each definition has been eliminated. It is difficult to keep alphabetical designators current and correct with the frequent additions and deletions of definitions. In addition, the references to definitions elsewhere in the SSRCR is by Section A.2 and not the specific paragraph, such as Paragraph A.2(a).

"Byproduct material" (rev.). The definition of byproduct material has been revised at the suggestion of the U.S. Nuclear Regulatory Commission (NRC) to be consistent with the Uranium Mill Tailings Radiation Control Act of 1978.

"Calibration" (new). A generic definition of calibration has been added as suggested by the National Bureau of Standards.

"Curie" (rev.). The definition of curie was revised by replacing the word "measurement" with "quantity" and the word "disintegration" with "transformation".

"Interlock" (new). A new definition for interlock has been added as suggested by the Part F and Part H working groups of the SSRCR.

"NARM" (rev.). The definition of NARM has been revised by including a statement on what materials are not included for clarification purposes.

"Ore refineries" (deleted). The definition of ore refineries was deleted as suggested by the NRC to be consistent with the Uranium Mill Tailings Radiation Control Act of 1978.

"Radioactivity" (rev.). The definition of radioactivity has been revised by replacing the word "disintegration" with "transformation".

"Rem" (rev.). The definition of rem has been revised in response to a comment from the National Bureau of Standards.

"Source material milling" (new). The definition of source material milling has been added at the suggestion of the NRC to be consistent with the Uranium Mill Tailings Radiation Control Act of 1978.

"Test" (rev.). The definition of test has been revised to be more generic in nature.

A.3 Exemptions

A.3(b) of the 1978 Edition. Carriers. The exemption for carriers has been deleted from Paragraph A.3(b) in Part A and placed in Section C.101. This change was made so that all regulations pertaining to transportation are located in one part. Paragraph A.3(c) is renumbered as Paragraph A.3(b).

A.12 The International System of Units (SI). A new section on the International System of Units (SI) has been added for informational purposes. In the narrative portion of the SSRCR, the SI units are placed in parentheses following the English units.

Appendix A. Transport Grouping of Radionuclides. A new note has been added to Appendix A concerning radionuclides not listed or mixtures of radionuclides for clarification purposes.

Matters for Future Consideration

1. There are several terms which need to be defined in Part A because they are used in more than one part of the SSRCR. The terms are as follows:
 - (a) Traceable to national standards
 - (b) Qualified expert
 - (c) Patient
2. Develop a list of abbreviations used in the SSRCR.