RH-D10

New Jersey Radiation Protection Code

AMENDMENTS TO
Chapter 1
GENERAL REQUIREMENTS

New Jersey (State) Department of Health
Trenton, 25

NEW JERSEY RADIATION PROTECTION CODE

Amendments To
Chapter 1
GENERAL REQUIREMENTS

Promulgated by

COMMISSION ON RADIATION PROTECTION

New Jersey State Department of Health

Effective Date: February 1, 1962

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RADIATION CODE INDEX

Amended Sections of

CHAPTER I—GENERAL REQUIREMENTS

NEW JERSEY RADIATION PROTECTION CODE

Pursuant to authority vested in it under Chapter 116, P.L. 1958, the Commission on Radiation Protection does this 17th day of November 1961, promulgate and adopt amendments to Chapter I of the New Jersey Radiation Protection Code as set forth below to become effective the 1st day of February 1962.

(Signed) Frank G. Dunnington
Chairman

NEW JERSEY RADIATION PROTECTION CODE

AMENDMENTS TO CHAPTER I—GENERAL REQUIREMENTS

SECTION 2—DEFINITIONS

The following terms as used in this Code shall mean and include:

2.1 Air-borne Radioactivity Area—An area accessible to individuals, in which air-borne radioactive materials are present in concentrations such that the: (a) values at any time are in excess of the respective values stated in Section 7.5, Column B, or prorated values if more than one isotope is present; or (b) values averaged over one work week are in excess of 25% of the respective foregoing values.

2.2 Area—A bounded space such as a room, floor, building, plant or any designated geographical entity having physical or imaginary boundaries.

2.3 Average Dose Rate—An integrated or accumulated dose of radiation divided by the time over which the integration or accumulation took place or by a specified length of time.

2.4 Beam Monitoring Device—A device placed in the useful beam to indicate the relative output of a radiation producing machine.

2.5 Contamination—Means radioactive contamination.

2.6 Contamination Hazard—A condition or situation which might result in an exposure of an individual to radioactive materials in excess of the maximum permissible concentrations. (See Radiation Hazard)

2.7 Controlled Area—Any area in which the access, occupancy and activity of those within are subject to control and supervision and which contains or may contain a radiation or contamination hazard.

2.8 Dead-man Switch—A switch which can be kept closed only when the operator applies continuous pressure.

2.9 Department—The New Jersey State Department of Health.

2.10 Diagnostic Type Tube Housing—X-ray tube housing so constructed that the leakage radiation at a distance of 1 meter from the target cannot exceed 100 mr in 1 hour when the tube is operated at any of its specified ratings.

2.11 Dose—A quantity of radiation delivered at a given point.

2.12 Dose Rate—Dose per unit time.

2.13 Emergency Exposure—An exposure to radiation of an emergency worker during rescue or other emergency operations.

2.14 Emergency Worker—A member of the owner's staff or of a public voluntary or governmental agency engaged in safety or other emergency operations

2.15 Hazard—Same as Radiation Hazard.

2.16 High Radiation Area—An area surrounding sources which is accessible to individuals and in which there exists radiation at such dose rates that a major portion of the body could receive in any one hour a dose in excess of 100 millirem.

2.17 Installation—A radiation source, with its associated equipment, and the area in which it is housed.

2.18 Instructed Individual—An individual who has received appropriate instructions as to the safe means and methods of performing work with or near radiation sources.

2.19 Leakage Radiation—All radiation coming from within the tube housing except the useful beam.

2.20 Maximum Permissible Dose—The maximum dose to which the body or a particular part of the body of a person shall be permitted to be exposed continuously or intermittently in a stated period of time.

2.21 Monitoring—A periodic or continuous determination of the radiation dose, or dose rate, or of radioactive contamination.

2.22 Owner—A person who has title to or possession as lessee or bailee of a radiation source.

2.23 Person—Means: (1) an individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, federal agency, municipality, any state, foreign government, or nation, or other legal entity; (2) any legal successor, representative, agent, or agency of the foregoing.

2.24 Primary Protective Barrier—Barrier intended to attenuate the useful beam.

2.25 Qualified Individual—An individual suited by training and experience to perform dependable radiation surveys and to determine the degree of radiation hazard.

2.26 Radiation Area—An area surrounding radiation sources which is accessible to individuals and in which there exists radiation at such dose rates that a major portion of the body could receive in any one hour a dose in excess of 5 millirems, or in any work week a dose in excess of 100 millirems.

2.27 Radiation Hazard—A condition or situation which might result in an exposure of individuals to radiation in excess of the maximum permissible dose. (See Contamination Hazard)

2.28 Radiation Incident—Any unexpected event, occurrence or circumstance involving radiation exposure or radioactive contamination.

2.29 Radiation Producing Machine—A machine or device capable of generating radiation, such as X-ray producing machines, particle accelerators, high voltage rectifiers, high voltage projection equipment, electron microscopes and other types of high voltage machines.

2.30 Radiation Source—Same as Source of Radiation.

2.31 Radioactive Material—A natural or artificially produced substance (solid, liquid or gas) which emits radiation spontaneously.

2.32 Sealed Source—A quantity of radioactive material so enclosed as to prevent the escape of any radioactive material, but at the same time permitting radiation to emerge.

2.33 Secondary Protective Barrier—Barrier intended to attenuate radiation other than the useful beam.

2.34 Shall—Indicates a mandatory requirement.

2.35 Shielding—Any material introduced into the path of radiation to reduce the dose rate at any particular point.

2.36 Should—Indicates an advisory recommendation.

2.37 Source of Radiation—A material, equipment or machine emitting or capable of emitting radiation.

2.38 State—The State of New Jersey.

2.39 Survey—Evaluation of actual or potential radiation or contamination hazards by or under the supervision of a qualified individual.

2.40 Therapeutic Type Tube Housing—X-ray tube housing so constructed that when the tube is operated at any of its specified ratings the leakage radiation at a distance of 1 meter from the target cannot exceed 1 r in 1 hour and, at a distance of 5 cm from any point on the surface of the housing, cannot exceed 30 r in 1 hour.

2.41 Total Filtration—The filtration produced by all materials inserted in the useful beam including (1) the materials comprising the tube and its housing, (2) any measuring devices in the beam, and (3) any material purposely placed in the beam as filters.

2.42 Unnecessary Radiation—The use of gamma rays, X-rays, alpha and beta particles, high speed electrons, neutrons, protons, and other atomic or nuclear particles in such a manner as to be injurious or dangerous to the health of the people or the industrial or agricultural potentials of the State. (As defined in the Radiation Protection Act, Chapter 116, P.L. 1958).

2.43 Useful Beam—That part of the radiation beam which passes through the window, aperture, cone, or other collimating device of the tube housing.

2.44 User—Any individual who personally utilizes or manipulates a source of radiation.

SECTION 4—EXEMPTIONS

4.6 Table of Exempt Quantities

Radionuclide	COLUMN A Unsealed (Microcuries)	COLUMN B Sealed (Microcuries)
Actinium 227	0.1	1
Americium 241	0.1	1
Antimony 124	1	10
Arsenic 73	1	10
Arsenic 74	1	10
Arsenic 76	10	10
Arsenic 77	10	10
Astatine 211	0.1	1
Barium-Lanthanum 140	1	10
Beryllium 7	50	50
Bromine 82	1	10
Cadmium-Silver 109	10	10
Calcium 45	10	10
Carbon 14	50	50
Cerium-Praseodymium 144	1	10
Cesium-Barium 137	1	10
Chlorine 36	1	10
Chromium 51	50	50
Cobalt 58	1	10
Cobalt 60	1	10
Copper 64	50	50
Curium 242	0.1	1
Europium 154	1	10
Fluorine 18	50	50
Gallium 72	10	10
Germanium 71	50	50
Gold 196	1	10
Gold 198	10	10
Gold 199	10	10
Holmium 166	1	10
Hydrogen 3	250	250
Indium 114	1	10

Radionuclide	COLUMN A Unsealed (Microcuries)	COLUMN B Sealed (Microcuries)
Iodine 131	10	10
Iodine 132	1	10
Iridium 190	1	10
Iridium 192	10	10
Iron 55	50	50
Iron 59	1	10
Krypton 85	1	10
Lanthanum 140	10	10
Lead 203	1	10
Lead 210 and dtrs	1	10
Lutecium 177	1	10
Manganese 52	1	10
Manganese 54	1	10
Manganese 56	50	50
Molybdenum 99	10	10
Nickel 59	1	10
Nickel 63	1	10
Niobium 95	10	10
Palladium-Silver 109	10	10
Palladium-Rhodium 103	50	50
Phosphorus 32	10	10
Platinum 191	1	10
Platinum 193	1	10
Plutonium 239	0.1	1
Polonium 210	0.1	1
Potassium 42	10	10
Praseodymium 143	10	10
Promethium 147	10	10
Radium 226	0.1	1
Rhenium 183	1	10
Rhenium 186	10	10
Rhodium 105	10	10
Rubidium 86	10	10
Ruthenium 103	1	10
Ruthenium-Rhodium 106	1	10
Samarium 151	1	10
Samarium 153	10	10

Radionuclide	COLUMN A Unsealed (Microcuries)	COLUMN B Sealed (Microcuries)
Scandium 46	1	10
Scandium 47	1	10
Scandium 48	1	10
Silver 105	1	10
Silver 110	1	10
Silver 111	10	10
Sodium 22	10	10
Sodium 24	10	10
Strontium 89	1	10
Strontium-Yttrium 90	0.1	1
Sulfur 35	50	50
Tantalum 182	10	10
Technetium 96	1	10
Technetium 99	1	10
Tellurium 127	10	10
Tellurium 129	1	10
Thallium 200	1	10
Thallium 201	1	10
Thallium 202	1	10
Thallium 204	50	50
Thorium nat.	50	50
Thorium-Protoactinium 234	1	10
Thulium-Ytterbium 170	1	10
Tin 113	10	10
Tungsten 181	1	10
Tungsten 185	10	10
Uranium 233	0.1	1
Uranium 234 and 235	0.1	1
Uranium natural	50	50
Vanadium 48	1	10
Yttrium 90	1	10
Yttrium 91	1	10
Zinc 65	10	10
Zirconium Niobium 95	1	10
β and/or τ emitter not listed above	1	10
α emitter not listed above	0.1	1

SECTION 11—LABELING AND POSTING

11.5 Posting of Areas Containing Radioactive Materials

Each entrance to areas or rooms in which radioactive material is used or stored in an amount greater than 10 times that specifically exempted in Section 4.6, Column A, shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

CAUTION RADIOACTIVE MATERIAL(S) or **DANGER RADIOACTIVE MATERIAL(S)**

11.6.1 Labeling of Equipment and Containers

Any equipment or container in which radioactive material is transported, stored, or used, in an amount greater than that specifically exempted in Section 4.6, Column A, shall bear a durable, clearly visible label bearing the radiation caution symbol and the words:

CAUTION RADIOACTIVE MATERIAL or **DANGER RADIOACTIVE MATERIAL**