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Date: 06/07/2007 8:57:29 AM
Subject: Agreement State - New Jersey Radiation Protection Regulations Submittal

Mr. Moore,
Please find attached NJ's submittal package for NRC compatability review of NJ's Radiation Protection Code. Included is a cover letter, regulations and transboundary issues table. A paper copy of the package is in the mail.
Rich Peros is the rule manager. He can be reached at (609) 984-5522 or richard.peros@dep.state.nj.us.

Please let me know if you have any questions or comments regarding our submittal.

Thanks
Pat Gardner

CC: "Bill Csaszar" <Bill.Csaszar@dep.state.nj.us>, "Jenny Goodman" <Jenny.Goodman@dep.state.nj.us>, "Paul Baldauf" <Paul.Baldauf@dep.state.nj.us>, "Richard Peros" <Richard.Peros@dep.state.nj.us>, <ATM@nrc.gov>, <DMJ@nrc.gov>

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JON S. CORZINE
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LISA P. JACKSON
Commissioner

June 1, 2007

Scott W. Moore, Deputy Director
Division Materials Safety and State Agreements
Office of Federal and State Materials and
Environmental Management Programs
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Mr. Moore:

Enclosed is a copy of the revisions to the proposed New Jersey Department of Environmental Protection Radiation Protection Programs' Rules (N.J.A.C. 7:28-1 et seq.). We anticipate the proposed revisions will be made available for public comment on October 15, 2007, with a request for comments by December 17, 2007. We request NRC's comments by August 1, 2007. The proposed regulations are identified by underlined inserted text, thus, and bracketed deleted text, [thus]. The attached Transboundary Issues table shows the Code of Federal Regulations that correspond to the New Jersey regulations.

We believe that adoption of these revisions satisfies the compatibility and health and safety categories established in the Office of Federal and State Materials and Environmental Programs (FSME) Procedure SA-200. If you have any questions, please feel free to contact me at 609-984-5400 or Richard Peros of my staff at 609-984-5522 or richard.peros@dep.state.nj.us.

Sincerely,

Patricia Gardner, Manager
Bureau of Environmental Radiation

Enclosures

NJ AGREEMENT STATE TRANSBOUNDARY ISSUES				
N.J.A.C. Rule Subchapter	**NRC Rule Title**	**10CFR**	**Compatibility**	**Comments***
Subchapter 1	General Provisions	Subpart A		
7:28-1.1	Purpose	20.1001	D	
7:28-1.1	Scope	20.1002	D	
7:28-1.4	Definitions	20.1003	A-D	Added definition for "diffuse" Changed "sanitary sewer system" to "domestic treatment works" and "residuals" to "sewage sludge" to be compatible with NJDEP Bureau of Pretreatment and Residuals regulations. Added definition of "Nationally tracked source" and incorporated Appendix E by reference.
		20.1004		
		20.1005		
7:28-1.6	Interpretations	20.1006	D	
7:28-1.5	Communications	20.1007	D	
7:28-1.7	Implementation	20.1008	D	
Subchapter 6	Radiation Protection Programs	Subpart B		
7:28-6.11	Radiation Protection Programs	20.1101	H&S, except C- paragraph (d)	
Subchapter 6	Occupational Dose Limits	Subpart C		
7:28-6.1	Occupational Dose Limits for Adults	20.1201	A	
7:28-6.2	Compliance with requirements for summation of external and internal doses	20.1202	A	
7:28-6.3	Determination of external dose from airborne radioactive material	20.1203	A	
7:28-6.4	Determination of internal exposure	20.1204	A	
7:28-6.5	Planned special exposures	20.1206	D	
7:28-6.6	Occupational dose limits for minors	20.1207	A	
7:28-6.7	Dose equivalent to an embryo/fetus	20.1208	A	
Subchapter 6	Radiation Dose Limits for Individual Members of the Public	Subpart D		
7:28-6.8	Dose limits for individual members of the public	20.1301	A,C,D	
7:28-6.9	Compliance with dose limits for individual members of the public	20.1302	H&S, D	
Subchapter 12	Radiological Criteria for License	Subpart E		

7:28-12.1 *et seq*	Termination			
7:28-12.1 and 7:28-12.2	General Provisions and Scope	20.1401	C	Changed 7:28-12.2(Applicability) to apply to source, certain special nuclear and by-product material. In addition, added licensee to those affected. Changed N.J.A.C. 7:28-12.10(d) (Minimum remediation standards for accelerator-produced, by-product, and certain special nuclear materials) and 12.11(g) (Petition for alternative remediation standards for radioactive contamiantion) to require calculations to be performed out to the time of peak dose. Additional cleanup conditions under N.J.A.C. 7:28-12.4(c) in accordance with the Industrial Site Recovery Act.
7:28-12.8 and 7:28-12.10	Radiological Criteria for unrestricted use	20.1402	C	Dose criteria is 15 mrem/y. In additon must meet groundwater and surface water NJDEP critreria, increment of 3 pCi/L of radon allowed. Added 7:28-12.10 (Minimum remediation standards for accelerator-produced, by-product, and certain special nuclear materials).
7:28-12.11 and 7:28-12.12	Criteria for license termination under restricted use	20.1403	C	Same criteria as unrestricted use with all controls in place. All controls fail language in 7:28-12.11(e). Revised 12.12 (b)2. to include CFR language on financial assurance.
7:28-12.11	Alternate criteria for license termination	20.1404	C	Same criteria as unrestricted use with all controls in place. 100 mrem/y all controls fail. No allowance for 500 mrem/y.
	Public notification and public participation	20.1405	C	Reference the Tech Regs
7:28-12.15	Minimization of contamination	20.1406	C	
Subchapter 7	Surveys and Monitoring	Subpart F		
7:28-7.1	General	20.1501	H&S	
7:28-7.3	Conditions requiring individual monitoring of external and internal occupational dose	20.1502	H&S	
Subchapter 10	Control of Exposure From External Sources in Restricted Areas	Subpart G		
7:28-10.3	Control of access to high radiation areas	20.1601	H&S	

7:28-10.4	Control of access to very high radiation areas	20.1602	H&S	
Subchapter 7	Respiratory Protection and Controls to Restrict Internal Exposure in Restricted Areas	Subpart H		
7:28-7.5	Use of process or other engineering controls	20.1701	H&S	
7:28-7.6	Use of other controls	20.1702	H&S	
7:28-7.7	Use of individual respiratory protection equipment	20.1703	H&S	
7:28-7.8	Further restrictionson the use of respiratory protection equipment	20.1704	D	
7:28-7.9	Application for use of higher assigned protections factors	20.1705	B	
Subchapter 9	Storage and Control of Licensed Material	Subpart I		
7:28-9.5	Security of stored material	20.1801	H&S	
7:28-9.6	Control of material not in stroage	20.1802	H&S	
Subchapter 10	Precautionary Procedures	Subpart J		
7:28-10.1	Caution signs	20.1901	A	
7:28-10.2	Posting requirements	20.1902(a)	A	
7:28-10.3	Posting requirements	20.1902(b)		
7:28-10.4	Posting requirements	20.1902(c)		
7:28-10.5	Posting requirements	20.1902(d)		
7:28-10.6	Posting requirements	20.1902(e)		
7:28-10.9	Exceptions to posting requirements	20.1903	D	
7:28-10.7	Labeling containers	20.1904(a)	A	
7:28-10.8	Labeling containers	20.1904(b)		
7:28-10.10	Exemptions to labeling requirements	20.1905	A	
7:28-10.11	Procedures for receiving and opening packages	20.1906	H&S	
Subchapter 11	Waste Disposal	Subpart K		
7:28-11.1	General requirements	20.2001	C	
7:28-11.7	Method for obtaining approval of proposed disposal procedures	20.2002	D	
7:28-11.2	Disposal by release into sanitary sewer	20.2003	A,C,D	Changed "sanitary sewer system" to "domestic treatment works" to be compatible with NJDEP Bureau of Pretreatment and Residuals regulations.
7:28-11.6	Treatment of disposal by incineration	20.2004	D	
7:28-11.9	Disposal of specific wastes	20.2005	D	

7:28-11.10	Transfer for disposal and manifests	20.2006	B	
7:28-11.11	Compliance with environmental and health protection regulations	20.2007	D	
Subchapter 8	Records	Subpart L		
7:28-8.1	General provisions	20.2101	C	
7:28-8.2	Records of radiation protection programs	20.2102	D	
7:28-8.3	Records of surveys	20.2103	D	
7:28-8.7	Determineation of prior occupational dose	20.2104	D	
7:28-8.8	Records of planned special exposures	20.2105	D	
7:28-8.9	Records of individual monitoring results	20.2106	C & D	
7:28-8.10	Records of dose to individual members of the public	20.2107	D	
7:28-8.11	Records of waste disposal	20.2108	D	
7:28-8.12	Form of recods	20.2110	D	
Subchapter 13	Reports	Subpart M		
7:28-13.1	Reports of theft or loss of licensed material	20.2201	C&D	
7:28-13.2	Notification of incidents	20.2202	C&D	
7:28-13.3	Reports of exposures, radiation levels, and concentrations of radioactive material exceeding the constraints or limits	20.2203	C&D	
7:28-13.4	Reports of planned special exposures	20.2204	D	
7:28-13.5	Reports to individuals exceeding dose limits	20.2205	C	
7:28-13.6	Reports of individual monitoring	20.2206	D or NRC	
Subchapter 2	Exemptions and Additional Requirements	Subpart N		
7:28-2.8	Applications for exemptions	20.2301	D	
7:28-2.13	Additional requirements	20.2302	D	
7:28-2.14	Violations	20.2401	D	
7:28-2.15	Criminal penalties	20.2402	D	
7:28-7	Protection Factors for Respirators	Appen. A	B	
7:28-6 7:28-11	Annual Limits on Intake, Derived Air Concentrations, of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sanitary Sewerage	Appen. B Tables 1,2, and 3.	A	
7:28-10.12	Quantities of licensed materials requiring	Appen. C	A	

	labeling			
7:28-1	Nationally Tracked Source Thresholds	Appen. E	A	
7:28-11	Requirements for Low-level Waste Transfer for disposal at land disposal facilities and Manifest	Appen. G	B	
Subchapters adopted by reference				
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*No comment means language is identical to CFR.

New Jersey Department of Environmental Protection – Radiation Protection Code NJAC 7:28

Subchapter 1. General Provisions

§ 7:28-1.1. Purpose and scope

(a) The purpose of this chapter is to prohibit and prevent the use or presence of unnecessary radiation in such manner as to be, or tend to be, injurious or dangerous to the health of the people or the industrial or agriculture potentials of the State, or to the ecology of the State and its wildlife.

(b) [Unless otherwise provided by statute, or codes, rules or regulations promulgated by the Commission on Radiation Protection this chapter shall constitute the rules of the Department of Environmental Protection, and shall govern all persons installing, using, handling, transporting or storing sources of radiation.] The regulations in this part apply to persons licensed or registered by the Department to receive, possess, use, transfer, or dispose of ionizing radiation producing machines, technologically enhanced naturally occurring radioactive materials, accelerator-produced radioactive materials, byproduct, source, or certain special nuclear material or to operate a production or utilization facility under N.J.A.C. 7:28-51 through 56, 57, 58, 59, or 60. of this chapter. The limits in this part do not apply to doses due to background radiation, to exposure of patients to radiation for the purpose of medical diagnosis or therapy, to exposure from individuals administered radioactive material and released under N.J.A.C. 7:28-55.1, or to exposure from voluntary participation in medical research programs.

(c) The regulations in this part establish standards for protection against ionizing radiation resulting from activities conducted under registrations or licenses issued by the Department.

(d) It is the purpose of the regulations in this part to control the receipt, possession, use, transfer, and disposal of licensed material or ionizing radiation producing machines by any licensee or registrant in such a manner that the total dose to an individual (including doses resulting from licensed and unlicensed radioactive material and from radiation sources other than background radiation) does not exceed the standards for protection against radiation prescribed in the regulations in this chapter. However, nothing in this chapter shall be construed as limiting actions that may be necessary to protect health and safety.

§ 7:28-1.2. Construction

These rules shall be liberally construed to permit the Department and its various agencies to discharge their statutory functions.

§ 7:28-1.3 Practice where rules do not govern

The Commission or the Department may rescind, amend or expand these rules from time to time, in accordance with *N.J.S.A. 26:2D-7*, Chapter 116, Public Laws of 1958, as amended.

§ 7:28-1.4 Definitions

The following words and terms, when used in this chapter, shall have the following meanings unless the context clearly indicates otherwise. Additional words and terms, applicable to a specific subchapter only, will be found in that subchapter.

(a) General Terms:

"Absorbed dose" means the energy imparted to matter by ionizing radiation per unit mass of irradiated material at the place of interest. The special unit for absorbed dose is the rad[.(See "Rad" under (b) below.)] and the gray (Gy).

"Act" means the New Jersey Radiation Protection Act, Chapter 116, Public Laws of New Jersey 1958, as amended, cited as *N.J.S.A. 26:2D-1* et seq.

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

"Agreement state" means any state with which the United States Nuclear Regulatory Commission has entered into an effective agreement under subsection 274b of the Atomic Energy Act of 1954, as amended.

"ALARA" [means] (acronym for "as low as is reasonably achievable") means making every reasonable effort to maintain exposures to radiation as far below the dose limits in this part as is practical consistent with the purpose for which the licensed activity is undertaken, taking into account the state of technology, [and] the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to [the] utilization of radiation in the public interest.

"Annually" means at intervals of not less than 51 consecutive weeks nor more than 53 consecutive weeks.

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

"Average dose rate" means 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.

"Background radiation" means radiation from cosmic sources; naturally occurring radioactive material, including radon (except as a decay product of source, special nuclear material, or technologically enhanced naturally occurring radioactive material); and 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 [State] licensee or [licensee] registrant. "Background radiation" does not include radiation from technologically enhanced naturally occurring radioactive materials, source, byproduct, or certain special nuclear materials regulated by the [U.S. Nuclear Regulatory Commission] Department [or from naturally occurring or accelerator produced radioactive materials regulated by the State].

["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 that no day in any year is omitted from inclusion within a calendar quarter. For purposes of this chapter, no State licensee, licensee, radioactive materials registrant or registrant shall change the method observed by him of determining calendar quarters except at the beginning of a calendar year.]

"Commission" means the New Jersey Commission on Radiation Protection.

"Controlled area" means [any]an area, outside of a restricted area but inside the site boundary, [to which the] access to which can be limited by the licensee or registrant for any reason [, occupancy and activity of those within are subject to control and supervision for the purpose of radiation protection].

"Dead-man switch" means a switch which can be kept closed only when the operator applies continuous pressure.

"Department" means the New Jersey Department of Environmental Protection.

"Dose or radiation dose" is a generic term that means absorbed dose, dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, or total effective dose equivalent, as defined under (b) below.

"Dose equivalent" means [a numerical quantity that expresses on a common scale for all ionizing radiation, a measure of the postulated effect on a given organ. It is defined as the absorbed dose in rads times certain modifying factors] the product of the absorbed dose in tissue quality factor, and all other necessary modifying factors at the location of interest. [The unit of dose is the Rem.] The units of dose equivalent are the rem and sievert (Sv). (See "Rem" under (b) below).

"Dose rate" means dose per unit time.

"Emergency exposure" means an exposure to radiation of an emergency worker during rescue or other emergency operations.

"Emergency worker" means a member of the owner's staff or of a public voluntary or governmental agency engaged in safety or other emergency operations.

"Exemption" means the administrative relief from the requirements of a substantive rule.

"Healing art" means the practice of any branch of medicine or surgery, any method of diagnosis of human ailment, disease, pain, injury, deformity, mental or physical condition.

"Inspection" means an official examination or observation including but not limited to tests, surveys, and monitoring to determine compliance with rules, regulations, orders, requirements and conditions of the Department.

"Installation" means a radiation source, with its associated equipment, and the area in which it is housed.

"Instructed individual" means an individual who has received appropriate instructions as to the safe means and methods of performing work with or near radiation sources.

"Ionizing radiation" means any form of radiation which has the capability of ionizing the medium through which it is passing.

"Maximum permissible dose" means 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.

"Monthly" means at intervals of not less than 4 consecutive weeks nor more than 5 consecutive weeks.

"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 to 10 C.F.R. Part 20, incorporated herein by reference. 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.

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

"Nonionizing radiation" means any form of radiation which does not have the capability of ionizing the medium through which it is passing.

"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 from [a machine source] an ionizing radiation-producing machine or to radioactive material from [State] licensed and unlicensed sources of radiation, whether in the possession of the [State] licensee, [licensee] or other person. Occupational dose does not include dose received from background radiation, from any medical administration the individual has received, from exposure to individuals administered radioactive material and released in accordance with Federal regulations found in [Title 10 Code of Federal Regulations, Part 35, section 75] N.J.A.C. 7:28-55.1, or as a member of the public.

"Owner" means a person who has title to a radiation source or who possesses a radiation source as a lessee, bailee or pursuant to the terms of a license issued by the Department, by a Federal agency, or by any other state.

"Person" [includes] means

(1)any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, [municipality, any state, or other legal entity; and any legal successor, representative agent, or agency of the foregoing] Government agency other than the NRC or the Department of Energy (except that the Department shall be considered a person within the meaning of the regulations in 10 CFR chapter I to the extent that its facilities and activities are subject to the licensing and related regulatory authority of the NRC under section 202 of the Energy Reorganization Act of 1974 (88 Stat. 1244), the Uranium Mill Tailings Radiation Control Act of 1978 (92 Stat. 3021), the Nuclear Waste Policy Act of 1982 (96 Stat. 2201), and section 3(b)(2) of the Low-Level Radioactive Waste Policy Amendments Act of 1985 (99 Stat. 1842)), any State or any political subdivision of or any political entity within a State, any foreign government or nation or any political subdivision of any such government or nation, or other entity; and

(2) Any legal successor, representative, agent, or agency of the foregoing.

"Personnel-monitoring equipment" means devices designed to be worn or carried by an individual for the purpose of measuring the dose received; for example, film badges, pocket chambers, pocket dosimeters, and thermoluminescent dosimeters.

"Qualified individual" means an individual suited by training and experience to perform dependable radiation surveys and to determine the degree of radiation hazard.

"Quarterly" means at intervals of not less than 12 consecutive weeks nor more than 14 consecutive weeks.

"Radiation" includes any or all of the following: electromagnetic radiation including radiofrequency, microwave, infrared, visible, ultraviolet, x-ray, or gamma ray; sonic, infrasonic, or ultrasonic waves; and particle radiation including alphas, betas, high [energy] speed electrons, neutrons, protons, high speed protons, and other atomic or nuclear particles capable of producing ions.

"Radiation area" means an area [which is accessible to a worker and in which there exists ionizing radiation at such levels that a major portion of the body would receive in any one hour a dose equivalent in excess of five millirems or in any workweek a dose equivalent in excess of 100 millirems; or levels of nonionizing radiation which exceed the maximum permissible levels of such radiation as specified in the rules and standards established by the Commission], accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 0.005 rem (0.05 mSv) in 1 hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.

"Research and development" means theoretical analysis, exploration, or experimentation; or the extension of investigative findings and theories of a scientific or technical nature into practical application for experimental production and testing of models, devices, equipment, materials and

processes. "Research and development" does not include the internal or external administration of radioactive material, or of radiation, to human beings.

"Semi-annually" means at intervals of not less than 25 consecutive weeks nor more than 27 consecutive weeks.

"Shielding" means any material introduced into the path of radiation to reduce the radiation level.

"Source of radiation" means a material, equipment or machine emitting or capable of emitting radiation.

"State" means the State of New Jersey.

["State license" means a license issued by the Department. See also "License" under (b) below.]

["State licensee" means a person who is required to obtain a license from the Department pursuant to this chapter.]

"Survey" means an evaluation [for a specific set of conditions or actual or potential radiation or contamination levels by or under the supervision of a qualified individual] of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation. When appropriate, such an evaluation includes a physical survey of the location of radioactive material or ionizing radiation producing machine and measurements or calculations of levels of radiation, or concentrations or quantities of radioactive material present.

"Unnecessary radiation" means the use of nonionizing or ionizing radiation in such a manner as to be, or tend 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.

"User" means any individual who personally utilizes or manipulates a source of radiation.

"Weekly" means at intervals of not less than 5 consecutive days nor more than 7 consecutive days.

(b) Ionizing radiation terms:

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

["Airborne-radioactivity area" means an area accessible to workers, in which airborne radioactive materials are present in concentrations such that the values at any time are in excess of the respective values stated in *N.J.A.C. 7:28-6.5(a)* (Average concentrations) Column B, or prorated values if more than one isotope is present; or values if averaged over the hours of occupancy in any week are in excess of 25 percent of the respective foregoing values.]

"Airborne radioactive material" means 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, composed wholly or partly of licensed material, exist in concentrations--

(1) In excess of the derived air concentrations (DACs) specified in appendix B to 10 CFR Part 20 herein incorporated by reference, 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 as specified in appendix B to 10 CFR Part 20, herein incorporated by reference.

"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.

"Annual limit on intake" (ALI) means the derived limit for the amount of radioactive material

taken into the body of an adult worker by inhalation or ingestion in a year. ALI is the smaller value of intake of a given radionuclide in a year by the reference man that would result in a committed effective dose equivalent of 5 rems (0.05 Sv) or a committed dose equivalent of 50 rems (0.5 Sv) to any individual organ or tissue. (ALI values for intake by ingestion and by inhalation of selected radionuclides are given in Table 1, Columns 1 and 2, of appendix B to 10 CFR Part 20, herein incorporated by reference).

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

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

"Beam-monitoring device" means a device in the useful beam to indicate the relative output of a radiation-producing machine.

"Bioassay" (radiobioassay) 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.

["Byproduct material" means 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.]

"Byproduct material" means--

(1) Any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident to the process of producing or utilizing special nuclear material; and

(2) The tailings or wastes produced by the extraction or concentration of uranium or thorium from ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes. Underground ore bodies depleted by these solution extraction operations do not constitute "byproduct material" within this definition.

"Class" (or lung class or inhalation class) means a classification scheme for inhaled material according to its rate of clearance from the pulmonary region of the lung. Materials are classified as D, W, or Y, which applies to a range of clearance half-times: for Class D (Days) of less than 10 days, for Class W (Weeks) from 10 to 100 days, and for Class Y (Years) of greater than 100 days.

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

"Constraint (dose constraint)" means a value above which specified licensee actions are required.

"Contamination" means radioactive contamination.

"Curie" means that amount of a specific radionuclide which disintegrates at the rate of 37 billion atoms per second.

i. The new International System of Units replaces "curie" with the "becquerel", which means that amount of a specific radionuclide which disintegrates at the rate of one atom per second. One curie [equals 3.7 x 10<10> becquerel] = 3.7 x 10^{10} disintegrations per second = 3.7 x 10^{10} becquerels = 2.22x10^{12} disintegrations per minute.

"Declared pregnant woman" means a woman who has voluntarily informed the [State] licensee[, radioactive materials registrant] or registrant, in writing, of her pregnancy and the estimated date of conception. The declaration remains in effect until the declared pregnant woman withdraws the declaration in writing[,] or is no longer pregnant.

"Deep-dose equivalent" ($H[d]_d$), which applies to external whole-body exposure, means the dose equivalent at a tissue depth of one cm (1,000 mg/cm $[n]^2$).

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

"Derived air concentration" (DAC) means the concentration of a given radionuclide in air which, if breathed by the reference man for a working year of 2,000 hours under conditions of light work (inhalation rate 1.2 cubic meters of air per hour), results in an intake of one ALI. DAC values are given in Table 1, Column 3, of appendix B to §§ 20.1001-20.2401.

"Derived air concentration-hour" (DAC-hour) is the product of the concentration of radioactive material in air (expressed as a fraction or multiple of the derived air concentration for each radionuclide) and the time of exposure to that radionuclide, in hours. A licensee may take 2,000 DAC-hours to represent one ALI, equivalent to a committed effective dose equivalent of 5 rems (0.05 Sv).

"Diagnostic-type protective tube housing" means x-ray tube housing so constructed that the leakage radiation at a distance of one meter from the target cannot exceed 100 milliroentgen in one hour when the tube is operated at any of its specified ratings.

"Diffuse" means a radionuclide that has become concentrated, but not for the purpose of use in 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.

"Domestic sewage" means waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works.

"Domestic treatment works" or "DTW" means all publicly owned treatment works as well as any other treatment works processing primarily domestic sewage and pollutants together with any ground water, surface water, stormwater or process wastewater that may be present.

"Dose or radiation dose" is a generic term that means absorbed dose, dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, or total effective dose equivalent, as defined in other paragraphs of this section.

"Dosimetry processor" means an individual or organization that processes and evaluates individual monitoring equipment in order to determine the radiation dose delivered to the equipment.

"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 factors ([w]W_T) applicable to each of the body organs or tissues that are irradiated ($H_E = \Sigma[w]W_T H_T$).

"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 radioactive materials. This includes entry or exit portals of sufficient size to permit human entry, irrespective of their intended use.

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

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

"Extremity" means hand, elbow, arm below the elbow, foot, knee, or 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 or quantitatively evaluate the fit of a respirator on an individual.

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

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

"Gray" (Gy) is the SI unit of absorbed dose. One gray is equal to an absorbed dose of 1 Joule/kilogram (100 rads).

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

"High radiation area" means an area [which is accessible to workers and in which there exists radiation at such levels that a major portion of the body could receive in any one hour a dose in excess of 100 millirem], accessible to individuals, in which radiation levels from radiation sources external to the body could result in an individual receiving a dose equivalent in excess of 0.1 rem (1 mSv) in 1 hour at 30 centimeters from the radiation source 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 deliberate internal and external administration of radiation or radioactive material to human beings.

"Individual" means any human being.

"Individual monitoring" means--

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

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

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

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

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

"Ionizing radiation-producing machine" means 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.

"Leakage radiation" means all radiation coming from within an ionizing radiation-producing machine except the useful beam.

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

"License", except where otherwise specified, means a license issued by the Department, United States Nuclear Regulatory Commission or any state for possession and use of radioactive material. [See also "State license" under (a) above].

"Licensed material" means accelerator produced, technologically enhanced naturally occurring radioactive material, source material, special nuclear material, or byproduct material received, possessed, used, transferred or disposed of under a general or specific license issued by the Department.

"Licensee" means a person who is required to obtain a license from the Department, U.S. Nuclear Regulatory Commission or any state other than New Jersey.

"Limits (dose limits)" mean the permissible upper bounds of radiation doses.

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

"Lost or missing licensed material" means licensed material whose location is unknown. It includes material that has been shipped but has not reached its destination and whose location cannot be readily traced in the transportation system.

["Medical radiographer" means any individual who, under the supervision of a licensed practitioner, uses medical radiographic equipment on human beings for diagnostic or therapeutic purposes.]

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

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

"Monitoring (radiation monitoring, radiation protection monitoring)" means a periodic or continuous measurement of ionizing radiation levels, concentrations, surface area concentrations or quantities of radioactive material and the use of the results of these measurements to evaluate potential exposures and doses.

["Monitoring" means a periodic or continuous determination of ionizing radiation levels or of radioactive contamination.]

"NARM" means any naturally occurring or accelerator produced radioactive material.

"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.

"Nonstochastic effect" means health effects, the severity of which varies with the dose and for which a threshold is believed to exist. Radiation-induced cataract formation is an example of a nonstochastic effect (also called a deterministic effect).

"NORM" means any naturally occurring radioactive material.

"Planned special exposure" means an infrequent exposure to radiation, separate from and in addition to the annual dose limits.

"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 barrier" means a barrier of radiation-absorbing material used to reduce radiation exposure. The types of protective barriers are as follows:

1. "Primary protective barrier" means the material, excluding filters, intercepting the useful beam for protection purposes to reduce the radiation exposure so that it does not exceed two millirems per hour;

2. "Secondary protective barrier" means a barrier sufficient to attenuate the stray radiation to reduce radiation exposure so that it does not exceed two millirems per hour.

"Public dose" means the dose received by a member of the public from exposure to radiation from [a machine source] an ionizing radiation-producing machine or to radioactive material released by a [State] licensee, or to any other source of radiation under the control of a licensee or registrant. Public dose does not include occupational dose or doses received from background radiation, from any medical administration the [patient] individual has received, or from exposure to individuals administered radioactive material and released in accordance with [Federal regulations found in 10 CFR 35, section 75] N.J.A.C. 7:28-55.1 or from voluntary participation in medical research programs.

"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 table 1 and 2 of this subchapter) 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.

"Quarter" means a period of time equal to one-fourth of the year observed by the licensee or registrant (approximately 13 consecutive weeks), providing that the beginning of the first quarter in a year coincides with the starting date of the year and that no day is omitted or duplicated in consecutive quarters.

"Rad" [means the dose corresponding to the absorption of 100 ergs per gram: a measure of the absorbed dose of any radiation to body tissues in terms of the energy absorbed per unit mass of the tissue.

i. The new International System of Units replaces the "rad" with the "gray", which means the dose corresponding to the absorption of one joule per kilogram. One rad equals 1x10<-2> gray.] is the special unit of absorbed dose. One rad is equal to an absorbed dose of 100 ergs/gram or 0.01 joule/kilogram (0.01 gray).

"Radioactive material" means a natural or artificially produced substance, solid, liquid or gas which emits ionizing radiation spontaneously.

["Radioactive materials registrant" means a person who is required to register radioactive by-product material, source material or special nuclear material with the Department pursuant to this chapter.]

"Radiographer" means any individual who is in attendance at a site where ionizing radiation sources are being used and who uses or supervises their use in industrial radiographic operations and who is responsible to the owner for assuring compliance with the requirements of this chapter.

"Radiographer's assistant" means any individual who, under the personal supervision of a radiographer, uses sources of ionizing radiation including ionizing radiation-producing machines, radiographic-exposure devices, sealed sources or related handling tools, or survey instruments in industrial radiography.

"Radiographic-exposure device" means any instrument containing a sealed source fastened or contained therein which the sealed source or shielding thereof may be moved or otherwise changed from a shielded to unshielded position for purposes of making a radiographic exposure.

"Radiography" means the examination of humans or animals, or of the structure of materials by non-destructive methods, utilizing sealed sources or ionizing radiation-producing machines. This term is not intended to apply to techniques such as electron microscopy or x-ray diffraction.

"Reference man" means a hypothetical aggregation of human physical and physiological characteristics arrived at by international consensus. These characteristics may be used by researchers and public health workers to standardize results of experiments and to relate biological insult to a common base.

"Registrant" means a person who is required to register an ionizing radiation-producing machine source of radiation with the Department pursuant to this chapter.

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

[means a measure of the dose of any ionizing radiation to body tissue in terms of its estimated biological effect relative to a dose of one rad of x-rays. For the purpose of this chapter, any of the following are considered to be equivalent to a dose of one rem:

i. A dose of one rad due to x, gamma, or beta radiation;

ii. A dose of 0.1 rad due to neutrons or high-energy protons;

iii. A dose of 0.05 rad due to particles heavier than protons and with sufficient energy to reach the lens of the eye.

(1) The new International System of Units replaces the "rem" with the "sievert", which means a

measure of the dose of any ionizing radiation to body tissue in terms of its estimated biological effect relative to a dose of one gray of x-rays. One rem equals 1x10<-2> sievert.

(2) If it is more convenient to measure the neutron flux, or equivalent, than to determine the neutron dose in rads, as provided in ii above, one rem of neutron radiation may, for purposes of this chapter, be assumed to be equivalent to 14 million neutrons per square centimeter incident upon the body; or, if there exists sufficient information to estimate with reasonable accuracy the approximate distribution in energy of the neutrons, the incident number of neutrons per square centimeter equivalent to one rem may be estimated from the following table:

Neutron energy (MeV)	Number of neutrons per square centimeter equivalent to a dose of 1 rem (neutron/cm<2>)	Average flux to deliver 100 milli- rem in 40 hours (neutrons/cm<2> per sec.)
Thermal	970 x 10<6>	670
0.001	720 x 10<6>	500
0.005	820 x 10<6>	570
0.02	400 x 10<6>	280
0.1	120 x 10<6>	80
0.5	43 x 10<6>	30
1.0	26 x 10<6>	18
2.5	29 x 10<6>	20
5.0	26 x 10<6>	18
7.5	24 x 10<6>	17

10	24 x 10<6>	17
10 to 30	14 x 10<6>	10

]

"Reference man" means a hypothetical aggregation of human physical and physiological characteristics arrived at by international consensus. These characteristics may be used by researchers and public health workers to standardize results of experiments and to relate biological insult to a common base.

"Respiratory protective device" means an apparatus, such as a respirator, used to reduce the individual's intake of airborne radioactive materials.

["Residual" means a solid waste that consists of the accumulated solids and associated liquids which are by-products of a physical, chemical, biological, or mechanical process or any other process designed to treat wastewater or any other discharges subject to regulation under the New Jersey Water Pollution Control Act, *N.J.S.A. 58:10A-1* et seq., as amended. For purposes of this chapter, residual includes, but is not limited to, marketable residual product, sludge and sewage sludge. Residual excludes screened vegetative waste and grit and screenings. The terms used in this definition shall have the same meaning as those in *N.J.A.C. 7:14A-1.2*.]

"Restricted area" means an area, access to which is limited by the licensee for the purpose of protecting individuals against undue risks from exposure to radiation and radioactive materials. 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 quantity of x or gamma radiation such that the associated corpuscular emission per .001293 grams of air produces, in air, ions carrying one electrostatic unit of quantity of electricity of either sign.

["Sanitary sewer system" means any device or system used in the storage and treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a State or municipality. This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a sanitary sewer system providing treatment. A synonym for sanitary sewer system is publicly owned treatment works (POTW).]

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

"Secondary protective barrier" means a barrier intended to attenuate ionizing radiation (other than the useful beam) to the required degree.

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

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

i. As used in this part, the quality factors for converting absorbed dose to dose equivalent are shown in table1.

Table 1-Quality Factors and Absorbed Dose Equivalencies

Type of radiation	Quality factor	Absorbed dose equal to a

	(Q)	unit dose equivalent[a]
X-, gamma, or beta radiation	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 rad equal to 1 rem or the absorbed dose in gray equal to 1 sievert.

ii. If it is more convenient to measure the neutron fluence rate than to determine the neutron dose equivalent rate in rems per hour or sieverts per hour, as provided in paragraph i. of this section, 1 rem (0.01 Sv) of neutron radiation of unknown energies may, for purposes of the regulations in this part, be assumed to result from a total fluence of 25 million neutrons per square centimeter incident upon the body. If sufficient information exists to estimate the approximate energy distribution of the neutrons, the licensee may use the fluence rate per unit dose equivalent or the appropriate Q value from table 2 to convert a measured tissue dose in rads to dose equivalent in rems.

Table 2--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})
(thermal).....	2.5×10^{-8}	2	980×10^{6}
	1×10^{-7}	2	980×10^{6}
	1×10^{-6}	2	810×10^{6}

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

535 [a] Value of quality factor (Q) at the point where the dose equivalent is maximum in a 30-cm diameter

cylinder tissue-equivalent phantom.

[b] Monoenergetic neutrons incident normally on a 30-cm diameter cylinder tissue-equivalent phantom.

"Sewage Sludge" means the solid, semi-solid, or liquid residue generated by the processes of a domestic treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and any material derived from sewage sludge.

"Shallow-dose equivalent" (Hs), 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).

"Shielded position" means the location within the radiographic-exposure device or storage container which by manufacturer's design, is the proper location for storage of the sealed source.

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

"Source material" means--

(1) Uranium or thorium or any combination of uranium and thorium in any physical or chemical form[,]; or

(2) Ores that contain, by weight, [1/20]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.

"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; U-233 in quantities not exceeding 200 grams; plutonium (Pu) 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 the kinds of special nuclear material in combination shall not exceed "1", that is, unity as illustrated in the following example:

175 grams Contained		50 grams		50 grams	
U-235	+	U-233	+	Pu	= 1
350		200		200	

]means--

(1) Plutonium, uranium-233, uranium enriched in the isotope 233 or in the isotope 235, and any other material that the NRC, pursuant to the provisions of section 51 of the Atomic Energy Act, 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.

"Stochastic effects" means health effects that occur randomly and for which the probability of the effect occurring, rather than its severity, is assumed to be linear function of dose without threshold. Hereditary effects and cancer incidence are examples of stochastic effects.

"Storage container" means a device in which radioactive materials or sources are transported or stored.

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

"Technologically enhanced naturally occurring radioactive materials" or "TENORM" means any naturally occurring radioactive materials whose radionuclide concentrations or potential for human exposure have been increased by any human activities.

"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 deep-dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures).

"Total filtration" means the filtration produced by all materials inserted in the useful beam including the materials comprising the tube and its housing, any measured devices in the beam which act as a filter, and any material purposely placed in the beam as filters.

"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 [State] licensee or registrant.

"Uranium fuel cycle" means the operations of milling of uranium ore, chemical conversion of uranium, isotopic enrichment of uranium, fabrication of uranium fuel, generation of electricity by a light-water-cooled nuclear power plant using uranium fuel, and reprocessing of spent uranium fuel to the extent that these activities directly support the production of electrical power for public use. Uranium fuel cycle does not include mining operations, operations at waste disposal sites, transportation of radioactive material in support of these operations, and the reuse of recovered non-uranium special nuclear and byproduct materials from the cycle.

"Useful beam" means that part of the radiation beam which passes through the window, aperture cone or other collimating device of the tube housing.

"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 500 rads (five grays) in one hour at one meter from a radiation source or one meter from any surface that the radiation penetrates. Note that at very high doses received at high dose rates, units of absorbed dose (for example, rads and grays) are appropriate, rather than units of dose equivalent (for example, rems and sieverts).

"Water treatment facility" means an entity that applies a treatment device to drinking water for the purpose of reducing contaminants. The entity may be a community water system or non-community water system as defined by the EPA in 40 CFR 141.

"Week" means 7 consecutive days starting on Sunday.

"Weighting factor" ([w[T]]W_T) for an organ or tissue (T) means the proportion of the risk of stochastic effects resulting from irradiation of that organ or tissue to the total risk of stochastic effects when the whole body is irradiated uniformly. For calculating the effective dose equivalent, the values of [w[T]]W_T are:

Organ Dose Weighting Factors

Organ or Tissue	[w[T]]W_T
Gonads	0.25
Breast	0.15

Red bone marrow	0.12
Lung	0.12
Thyroid	0.03
Bone surfaces	0.03
Remainder	0.30 a
Whole Body	1.00 b

a 0.30 results from 0.06 for each of 5 "remainder" organs (excluding the skin and the lens of the eye) that receive the highest doses.

b For the purpose of weighting the external whole body dose (for adding it to the internal dose), a single weighting factor, [w[T]]W_T = 1.0, has been specified. The use of other weighting factors for external exposure will be approved on a case-by-case basis until such time as specific guidance is issued.

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

"Working level" (WL) is any combination of short-lived radon daughters (for radon-222: polonium-218, lead-214, bismuth-214, and polonium-214; and for radon-220: polonium-216, lead-212, bismuth-212, and polonium-212) in 1 liter of air that will result in the ultimate emission of 1.3×10^5 MeV of potential alpha particle energy.

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

"X-ray tube" means an electron tube which is designed for the conversion of electrical energy into x-ray energy.

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

(c) Non-ionizing radiation terms:

"Electric field strength" means a field vector quantity that represents the force on an infinitesimal unit positive test charge at a point divided by that charge. The electric field strength is expressed in units of volts per meter (V/m).

"Far field" means a region associated with a radiating source or structure in which the field per unit solid angle is constant. In this region, the field has a predominantly plane wave character, that is, locally very uniform distributions of electric field strength and magnetic field strength in planes perpendicular to the direction of propagation. Generally, the far field region begins several wavelengths distant from the source.

"Fixed radio frequency device" means a device operating at a specific location for a period of 30 days or more.

"Magnetic field strength" means a field vector that is equal to the product of the magnetic flux density and the reciprocal of the permeability. Magnetic field strength is expressed in units of amperes per meter (A/m).

"Microwave oven" means an oven which is designed to heat, cook or dry food through the applications of radio frequency electromagnetic energy, and which is designed to operate at a frequency of 916 MHz or 2.45 GHz.

"Near field" means a region near a radiating source or structure in which the electric and magnetic fields do not have a substantially plane wave character, but vary considerably from point to point. The extent of the near field is only vaguely defined and depends on several factors the most important of which is the size of the radiating structure with respect to the wavelength of the emitted electromagnetic energy. In general, this distance extends to at least five wavelengths from the radiating device.

"Power density" means the rate of energy transported into a small sphere divided by the cross-sectional area of that sphere. Power density is expressed in units of watts per meter squared (W/m<2>), or for convenience milliwatts per centimeter squared (mW/cm<2>).

"Power density, plane wave equivalent" means a quantity that is associated with any electromagnetic wave that is equal in magnitude to the power density of a plane wave that has the same electric or magnetic field strength.

"Radiating device" means the antenna, leakage port, or any other part of a device that emits radio frequency electromagnetic energy.

"Radio frequency" means the frequency range of 300 kilohertz (kHz) to 100 gigahertz (GHz).

"Radio frequency device" means any stationary device, machine, equipment or installation which is capable of generating a radio frequency electromagnetic field. This does not include devices which are marketed as consumer products, including, but not limited to citizens band radios, remote controlled toys, remote controlled garage door openers, mobile radio transmitter under authorization of the Federal Communications Commission or any other device specifically exempted by the Commission on Radiation Protection as not presenting a potential hazard or harm to a worker or the public.

"Radio frequency protection guide (RFPG)" means the mean squared electric field strength, the mean squared magnetic field strength, and the equivalent plane wave power density which shall not be exceeded. The RFPG is an upper limit of exposure. Exposure to levels slightly in excess of the RFPG

is not harmful, however, such exposure is not desirable. In all cases the exposure shall be reduced to values that are as low as reasonably achievable.

"Specific absorption rate (SAR)" means the time derivative of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (<<rho).

$$SAR = \frac{ddW}{dt\ dm} = \frac{ddW}{dt \ll\rho\ dV}$$

The specific absorption rate is expressed in units of watts per kilogram (W/kg). In view of the proliferation of terms for describing the electromagnetic radiation conditions in biological materials and the discipline oriented interpretation of these terms, it is recommended that the name "specific absorption rate" be used for the quantity defined here, rather than such a name as "absorbed power density per unit mass".

§ 7:28-1.5. Communications

(a) Communications concerning this chapter, or matters relating to radiation protection, may be addressed to the New Jersey Department of Environmental Protection, Radiation Protection and Release Prevention Element, PO Box 415, Trenton, New Jersey 08625-0415. The physical location of the office is 25 Arctic Parkway, Ewing, New Jersey 08638.

(b) All emergency notification of incidents involving sources of radiation in this State shall be immediately reported to either one of the following agencies:

1. Radiation Protection and Release Prevention Element

New Jersey Department of Environmental Protection

25 Arctic Parkway

Ewing, NJ 08638

Telephone: (609) 984-5462

Hours: 8:00 A.M. to 5:00 P.M. daily, except Saturday, Sunday, and Holidays

After hours and weekends: 609 292-7172 or toll free: 1 (877) 927-6337 (1 (877) WARN-DEP)

2. Communications Officer

New Jersey State Police Office of Emergency Management

West Trenton, NJ 08628

Telephone: 609-882-2000

Hours: 24 hours, seven days.

§ 7:28-1.6. Interpretations.

Except as specifically authorized by the Department in writing, no interpretation of the meaning of the regulations in this Chapter by an officer or employee of the Department other than a written interpretation will be recognized to be binding upon the Department.

§ 7:28-1.7. Implementation.

(a) The applicable section of this subchapter must be used in lieu of requirements in the US NRC's standards for protection against radiation in effect prior to January 1, 1994[1] that are cited in license conditions or technical specifications, except as specified in paragraphs (b), (c), and (d) of this section. If the requirements of this part are more restrictive than the existing license condition, then the licensee shall comply with this part unless exempted by paragraph (c) of this section.

(b) Any existing license condition or technical specification that is more restrictive than a requirement in this subchapter remains in force until there is a technical specification change, license amendment, or license renewal.

(c) If a license condition or technical specification exempted a licensee from a requirement in the standards for protection against radiation in effect prior to January 1, 1994,[1] it continues to exempt a licensee from the corresponding provision of this subchapter.

(d) If a license condition cites provisions in requirements in the standards for protection against radiation in effect prior to January 1, 1994[1] and there are no corresponding provisions in this subchapter, then the license condition remains in force until there is a technical specification change, license amendment, or license renewal that modifies or removes this condition.

[1] See 10 CFR Parts 20.1-20.602 codified as of January 1, 1993.

SUBCHAPTER 2. USE OF SOURCES OF IONIZING RADIATION AND SPECIAL EXEMPTIONS

§ 7:28-2.1 Authorized use of sources of ionizing radiation

(a) No person shall manufacture, use, operate, receive, possess, dispose, transfer, distribute or arrange for the distribution, sell, lease, install, transport or store sources of ionizing radiation in a manner other than prescribed in this chapter.

(b) No person shall cause, suffer, allow or permit any person to manufacture, use, operate, receive, possess, dispose, transfer, distribute or arrange for the distribution, sell, lease, install, transport or store sources of ionizing radiation in a manner other than prescribed in this chapter.

§ 7:28-2.2 Supervision

(a) All sources of radiation, except those specifically exempted by other sections of this chapter, shall be under the supervision of at least one person who has demonstrated to the Department, or to any agency recognized by the Department, that the person's training and experience satisfies the Department requirements in the following areas of radiation protection:

1. Principles and practices of radiation protection;

2. X-ray and/or radioactivity measurements and monitoring techniques and instruments;

3. Mathematics and calculations basic to the use of radiation;

4. Biological effects of radiation; and

5. Any additional information, qualifications or experience as may be required by the Department.

(b) Any person applying to the Department for a State license, registration or certificate pursuant to this chapter, shall include in his application the name of at least one person who has satisfied the requirements of (a) above.

§ 7:28-2.3 Instruction

(a) All persons working in or frequenting the vicinity of radiation-producing machines or radioactive material shall be instructed in the operation and/or use of the sources of radiation and the function and need of any applicable safeguards for the sources of radiation, in accordance with preestablished procedures that have been documented and are on file for review and inspection.

(b) All visitors to controlled areas shall be instructed or escorted to prevent unnecessary exposure to radiation. See N.J.A.C. 7:28-7.[4]3(a)[4]5 [(Use of personnel monitoring equipment for visitors)].

§ 7:28-2.4 Unattended radiation sources

No person shall cause, suffer, allow or permit any source of radiation to remain unattended and accessible to unauthorized use.

§ 7:28-2.5. Protective devices, systems or mechanisms

(a) No person shall operate a radiation-producing machine or utilize radioactive material whenever shielding for the source of radiation permits levels of radiation that exceed or have the potential to exceed the radiation limits specified in *N.J.A.C. 7:28-6.2* (Radiation levels outside controlled areas).

(b) No person shall operate a radiation-producing machine or utilize radioactive material whenever any device, system or mechanism designed for the protection against radiation required by this chapter has not been installed or is operating improperly.

§ 7:28-2.6 Intentional human irradiation

(a) Only persons licensed or otherwise permitted by law shall arrange for irradiation, application or administration of radiation to a human being or any part thereof, for the purpose of medical diagnosis or treatment.

(b) No provision in N.J.A.C. 7:28 regarding the treatment of human beings in the healing arts is intended to conflict with, supplant or supersede any requirement of the Medical Practices Act of New Jersey.

§ 7:28-2.7 Exemptions for prevention or control of diseases

Rules contained in N.J.A.C. 7:28-6 or 7 and 7:28-13.2 (Reportable radiation incidents) shall not apply insofar as they relate to the intentional exposure of human beings to radiation for the purpose of diagnosis, treatment or investigation for the prevention or control of disease.

§ 7:28-2.8 Special exemptions

(a) For registrants of ionizing radiation producing machines, the Department, upon application and a showing of hardship or compelling need, with the approval of the Commission, may grant an exemption from any requirement of these rules should it determine that such exemption will not result in any exposure to radiation in excess of the limits permitted by N.J.A.C. 7:28-6, Dose Limits.

(b) For radioactive materials, the Department may, upon application by a licensee or upon its own initiative, grant an exemption from the requirements of the regulations in this part if it determines the exemption is authorized by law and would not result in undue hazard to life or property.

§ 7:28-2.9 Prohibited use

(a) Hand-held fluoroscopic screens shall not be used.

(b) Shoe-fitting fluoroscopic devices shall not be used.

§ 7:28-2.10 Emergency precautions

(a) All owners of radioactive materials shall make a study of potential radiation hazards which may arise from radiation incidents, theft of radioactive materials, fires, floods, windstorms and other disasters within and near the installation with regard to the protection of the following:

1. Tenants and employees;

2. Emergency workers;

3. General public; and

4. Fire fighters and police.

(b) Such studies shall be made for radioactive materials on hand and shall be made in advance of the receipt of additional radioactive materials.

(c) An emergency operational plan, prepared from these studies, shall inform all persons concerned of their duties and responsibilities. This plan shall be made available to the Department on request.

§ 7:28-2.11 Inspections

(a) All persons shall afford the Department an opportunity to inspect any source of radiation and the operation associated with the source of radiation as well as the facilities and premises where the source of radiation is being used or stored.

(b) Upon request of the Department all persons shall make available for inspection by the Department records kept pursuant to the rules in N.J.A.C. 7:28.

§ 7:28-2.12 Tests

Upon request of the Department, all persons shall perform, and/or permit the Department to perform if it so desires, such tests as the Department deems appropriate or necessary for the administration of this chapter.

§ 7:28-2.13 Additional requirements

The Department may, by rule, regulation, or order, impose requirements on a licensee or registrant, in addition to those established in the regulations in this Chapter if it deems appropriate or necessary to protect health or to minimize danger to life or property.

§ 7:28-2.14 Violations

(a) The Department may obtain an injunction or other court order to prevent a violation of the provisions of--

(1) The Radiation Protection Act of 1969, as amended; or

(2) A regulation or order issued pursuant to the Act.

(b) The Department may impose a civil penalty under section 26:2D-13 of the Act.

(1) For violations of--

(i) Any rule, regulation, or order issued pursuant to this Chapter and;

(ii) Any term, condition, or limitation of any license issued under this Chapter

(2) For any violation for which a license may be revoked under Subchapters 4, of this Chapter or Subchapters 50 through 63 of this Chapter.

§ 7:28-2.15 Criminal penalties.

Section 26:2D-22 of the Radiation Protection Act of 1958, as amended, provides for criminal sanctions for violation of any provision of the Act.

SUBCHAPTER 3. REGISTRATION OF IONIZING RADIATION-PRODUCING MACHINES [AND RADIOACTIVE MATERIALS]

§ 7:28-3.1 Registration for possession of ionizing radiation-producing machines [and radioactive by-product material, source material and special nuclear material]

(a) Any person, manufacturer, dealer or State, county or local government shall register with the Department [all radioactive by-product material, source material, special nuclear material and] every ionizing radiation-producing machine possessed within the State of New Jersey except as exempted by *N.J.A.C. 7:28-3.2*.

(b) Any person, manufacturer, dealer or State, county or local government shall apply for such registration within 30 days after taking possession, custody or control of [radioactive by-product material, source material, special nuclear material and] ionizing radiation-producing machines on forms available from the Department.

(c) Any person, manufacturer, dealer or State, county or local government shall retain a copy of the registration at the facility for inspection by employees and the Department.

§ 7:28-3.2 Exemptions from registration for possession of ionizing radiation-producing machines [and radioactive by-product material, source material and special nuclear material]

(a) Ionizing radiation-producing machines not being used in such a manner as to produce radiation, such as equipment in storage or on display, are exempt from registration. Machines that are operated while on display must meet the requirements of *N.J.A.C. 7:28-3.1*.

(b) Electrical equipment that is not primarily intended to produce radiation and that does not produce radiation greater than 0.5 millirem per hour at any readily accessible point five centimeters from its surface is exempt from registration. Production-testing facilities for such equipment shall not be exempt if any individual might receive a radiation dose exceeding the limits established in *N.J.A.C. 7:28-6.2*.

(c) Ionizing radiation-producing machines possessed, stored or used by agencies of the United States Government are exempt from registration.

[(d) Those radioactive materials covered in specific and general state licenses issued by the Department in accordance with N.J.A.C. 7:28-4 are exempt from registration.

(e) Those radioactive materials contained in devices which are covered under general license issued by the United States Nuclear Regulatory Commission or have been granted an exemption from licensing requirements by the United States Nuclear Regulatory Commission are exempt from registration.

(f) Quantities of radioactive material equal to or less than those listed in *N.J.A.C. 7:28-3.11* are exempt from registration requirements provided that no individual user of radioactive material shall have more than 10 such quantities of any material or materials at any one time.]

7:28-3.3 Registration of ionizing radiation-producing machines

(a) Registration of ionizing radiation-producing machines shall pertain to each x-ray tube and its accompanying transformer, generator and control panel. If more than one x-ray tube operates off the same control panel, a separate registration is required for each tube.

(b) All registrations issued for ionizing radiation-producing machines shall expire on May 19 of each renewal year or shall expire one year from the date of initial application as determined by the Department. Registrations are renewable by the registrant for a period of one year upon payment of the fee provided in *N.J.A.C. 7:28-3.9*.

(c) Applications for new registrations for ionizing radiation producing machines will be accepted throughout the calendar year. The annual registration fee set forth in *N.J.A.C. 7:28-3.9* shall be either prorated from the date the registration is issued until its expiration date on May 19 following the date of application, except that the Department may issue a registration for an additional year when an application is initially filed during the last three months of the registration year, or shall be assessed in full from the date of application until its expiration date one year later as determined by the Department.

§ 7:28-3.4 Temporary registration of ionizing radiation-producing machines

(a) Any person, manufacturer, dealer or State, county or local government having temporary possession, custody or control of any ionizing radiation-producing machine for the purpose of replacing a registered machine that is out of service for a period longer than 60 days or for evaluation prior to purchase for a period longer than 60 days shall obtain a registration for temporary possession, custody or control of said machine.

(b) Application for temporary registration shall be submitted, on forms available from the Department, within 30 days after taking temporary possession, custody or control. No registration fee will be charged if the period of temporary possession, custody or control does not exceed 60 days. If the period exceeds 60 days, the annual registration fee for said machine set forth in *N.J.A.C. 7:28-3.9* will be charged as of the date of application for the temporary registration.

(c) Within 30 days after relinquishment of temporary possession, custody or control of an ionizing radiation-producing machine, the registrant shall notify the Department in writing to terminate the temporary registration. The Department shall continue to charge a registration fee until a written notice of termination is received from the registrant.

§ 7:28-3.5 [Registration of radioactive by-product material, source material and special nuclear material

(a) Any person having within his possession, custody or control any radioactive by-product material, source material or special nuclear material pursuant to a specific license issued by the United States Nuclear Regulatory Commission shall apply for and obtain a registration for possession, custody or control of the specified type(s) and amount(s) of such material as authorized by the license issued by the Nuclear Regulatory Commission. Application forms for the registration of radioactive material are available from the Department. When submitting an application, the applicant shall attach to the application a copy of the license issued by the Nuclear Regulatory Commission.

(b) A radioactive materials registrant does not have to apply for a new or amended registration for receipt of each shipment of a type of radioactive material for which it has a valid current registration provided that the total amount of such type of radioactive material in the radioactive materials registrant's possession, custody or control does not exceed the amount authorized in its registration for such type of material.

(c) Fees in the amounts indicated in *N.J.A.C. 7:28-3.13* shall be paid for each initial registration application, each registration amendment and each annual registration renewal.

(d) Any registration issued for radioactive materials pursuant to this subchapter shall be valid for so long as the license issued by the United States Nuclear Regulatory Commission is in full force and effect.] Reserved

§ 7:28-3.6 Transfer of registration for [possession of radioactive by-product material, source material, special nuclear material and] ionizing radiation-producing machines

Registrations for [possession of radioactive by-product material, source material, special nuclear material and] ionizing radiation-producing machines are not transferable.

§ 7:28-3.7 Amendments to registration of ionizing radiation-producing machines

(a) A registrant must notify the Department in writing within 30 days after any change in the following information on the application for registration of an ionizing radiation-producing machine:

1. Trade name;

2. X-ray tube capacity;

3. Type of housing;

4. Generator power;

5. Owner;

6. Co-owner;

7. Location of machine including address (number, street, city, zip code, county) and room number;

8. Machine category;

9. Manufacturer;

10. Control panel model number; and

11. Control console serial number.

§ 7:28-3.8 [Amendments to registration of radioactive by-product material, source material or special nuclear material

A radioactive materials registrant shall notify the Department in writing within 30 days after any change in the license issued by the Nuclear Regulatory Commission for possession, custody or control of any type of radioactive by-product material, source material or special nuclear material when there is a change in the type and/or quantity of such material or when there is a change in the designated licensed user(s) or radiation safety officer.] Reserved

§ 7:28-3.9 Sale, installation, relocation or disposal of ionizing radiation-producing machines

(a) Whenever a manufacturer or dealer sells, installs, relocates or disposes of an ionizing radiation-producing machine, said manufacturer, agent or dealer shall give written notification thereof to the Department within 30 days of such sale, installation, relocation or disposal. Said notification shall include the manufacturer, model and serial number of each component, name and address of the new owner(s), address of the relocated machine or details of the final disposition of the machine. Notification shall be submitted on a form available from the Department. The Department may accept the current form used by the United States Food and Drug Administration for Report of Assembly of a Diagnostic X-ray System if the Department determines that the information is complete and accurate.

(b) Whenever an owner sells, relocates or disposes of an ionizing radiation-producing machine, said owner shall:

1. Give written notification to the Department on forms available from the Department within 30 days of such sale, relocation or disposal;

2. Include the New Jersey registration number, manufacturer, model and serial number of each component;

3. Include the name and address of the new owner(s); and

4. Include the address of the relocated machine, or details of the final disposition of the machine; and

5. Be responsible for all fees until the written notification is received by the Department.

§ 7:28-3.10 Denial of an application for registration, and suspension, modification, or revocation of registration of ionizing radiation-producing machines[, radioactive by-product material, source material or special nuclear material]

(a) The Department, in addition to any penalties authorized by the Act, may deny an application for registration or suspend, modify or revoke a registration of ionizing radiation-producing machines[, radioactive by-product material, source material or special nuclear material] by reason of amendments to the Act, adoption of rules, orders issued by the Department pursuant to said Act or if the applicant, [radioactive materials registrant] or registrant:

1. Fails to comply with any provisions of the Act or any rules promulgated pursuant thereto including the timely payment of registration fees;

2. Falsifies or makes misleading statements in the application for registration;

3. Falsifies or makes misleading statements in any documents which were utilized to obtain a registration;

4. Alters registration documents;

5. Falsifies required records;

6. Aids, abets, combines with, or conspires with any person for any purpose which will evade or be in violation of the provisions of the Act or any rules promulgated pursuant thereto; or

7. Allows a registration to be used by any person for any purpose which will evade or be in violation of the provisions of the Act or any rules promulgated pursuant thereto.

(b) Except as provided in *N.J.S.A. 26:2D-12* in cases of emergency, no registration shall be denied, modified, suspended or revoked prior to a hearing conducted by the Office of Administrative Law pursuant to *N.J.S.A. 52:14B-1* et seq., the Administrative Procedure Act, and N.J.A.C. 1:1-1 et seq., the Uniform Administrative Practice Rules, on the basis of a Notice of Intent filed by the Department stating the grounds for denial, suspension, modification or revocation of a registration.

(c) The Department may terminate a registration upon request submitted by the [radioactive materials registrant or] registrant to the Department in writing.

§ 7:28-3.11. [Table of radioactive materials and quantities exempt from registration

(a) The following radioactive materials, in quantities less than or equal to those specified below, are exempt from registration: Click here to view image.] Reserved

§ 7:28-3.12. Application and annual registration renewal fees for ionizing radiation-producing machines

(a) On initial registration of each x-ray tube, each registrant shall pay an application fee of $40.00 plus the prorated portion of the applicable annual registration renewal fee set forth in (b), (c), (d) or (e) below for the remainder of the first year of registration.

(b) Each registrant of an ionizing-radiation-producing machine used in a dental facility shall pay:

1. The initial application and registration fees for each x-ray tube pursuant to (a) above, and

2. In each year after the expiration of the first year of registration established pursuant to (f) below, the annual registration renewal fee per x-ray tube as follows: Click here to view image.

(c) Each registrant of an ionizing-radiation-producing machine used in a hospital facility shall pay:

1. The initial application and registration fees for each X-ray tube pursuant to (a) above; and

2. In each year after the expiration of the first year of registration establish pursuant to (f) below, the annual registration renewal fee per X-ray tube follows: Click here to view image.

(d) Each registrant of an ionizing-radiation-producing machine used in a non-hospital facility (including but not limited to doctors' offices, medical facilities, industrial facilities, schools, and government facilities) shall pay:

1. The initial application and registration fees for each X-ray tube pursuant to (a) above; and

2. In each year after the expiration of the first year of registration established pursuant to (f) below, the annual registration renewal fee per X-ray tube as follows: Click here to view image.

(e) Each registrant of an ionizing-radiation-producing machine used in a veterinary facility shall pay:

1. The initial application and registration fees for each X-ray tube pursuant to (a) above, and

2. In each year after the expiration of the first year of registration established pursuant to (f) below, the annual registration renewal fee per X-ray tube as follows: Click here to view image.

(f) The expiration date of each year of registration shall be specified by the Department on the billing invoice sent to each registrant. The registration expiration date shall be based on the first letter of the registrant name as follows:

1. For a registrant whose name begins with A through F, the registration expiration date shall be August 31 of each calendar year;

2. For a registrant whose name begins with G through L, the registration expiration date shall be September 30 of each calendar year;

3. For a registrant whose name begins with M through R, the registration expiration date shall be October 31 of each calendar year; and

4. For a registrant whose name begins with S through Z, the registration expiration date shall be November 30 of each calendar year.

(g) Each registrant shall pay the initial registration application fee and annual registration renewal fee within 60 days of the date of the invoice billing issued by the Department. Any fee payment postmarked or hand carried to the Department after the invoice due date will be subject to a $25.00 per month late charge. If necessary, the Department will issue a second invoice. Late charges must be paid within 30 days of the second invoice. If a registrant fails to pay a fee by the original invoice due date, the registration of the ionizing-radiation-producing machine shall be deemed expired.

(h) When two or more X-ray tubes are operated from the same generator, the registrant shall pay an application fee and an annual registration renewal fee for each tube.

(i) Each registrant shall make payment only by check or money order made payable to "Treasurer, State of New Jersey." Each payment shall be accompanied by the invoice issued by the Department and shall be submitted to the address specified on the invoice: Department of Treasury, Division of Revenue, PO Box 417, Trenton, New Jersey 08646-0417.

(j) An application fee will not be charged for any machine registered pursuant to the Radiation Protection Code prior to November 16, 1987. However, the registrant shall pay the applicable annual registration renewal fee for any such machine.

[§ 7:28-3.13. Fees for registration of radioactive by-product material, source material and special nuclear material

(a) Fees for initial registration, annual registration renewal and each registration amendment for possession, custody or control of radioactive by-product material, source material and special nuclear material as provided below shall be paid in full by the radioactive materials registrant.

1. Initial Registration Fee: $250.00;

2. Annual Registration Renewal: $165.00;

3. Each Amendment to Registration: $165.00.

(b) Payment for each initial registration shall be made only by check or money order payable to "Treasurer, State of New Jersey" and shall be submitted with each initial registration application to the Department.

(c) Annual registration renewal fees payable to "Treasurer, State of New Jersey" shall be submitted to the Department annually no later than August 1 of each year.

(d) In the event that registration renewal fees are paid later than 30 days after August 1, a delinquency fee equal to one-half of the annual registration fee will be imposed. Failure to pay a registration renewal fee, including any accrued delinquency fees for longer than 90 days after August 1 shall constitute grounds for suspension or revocation of the registration pursuant to *N.J.A.C. 7:28-3.10.*

(e) Registration amendment fees shall be submitted with the amended registration.

(f) The initial registration fee, the annual renewal fee and registration amendment fee shall be mailed to:

State of New Jersey

Department of Treasury

Division of Revenue

PO Box 417

Trenton, New Jersey 08646-0417

(g) The registration year shall be July 1 of each year to June 30 of the following year.

(h) Fees submitted to the Department are non-refundable.]

SUBCHAPTER 4. LICENSING OF DIFFUSE NATURALLY OCCURRING OR DIFFUSE ACCELERATOR PRODUCED RADIOACTIVE MATERIALS

§ 7:28-4.1 Scope and general provisions

(a) This subchapter shall apply to persons who manufacture, produce, transfer, distribute or arrange for the distribution, sell, lease, receive, acquire, own, possess or use any diffuse naturally occurring or diffuse accelerator produced radioactive materials, including TENORM, in this State.

(b) No person shall manufacture, produce, transfer, distribute or arrange for the distribution, sell, lease, receive, acquire, own, possess or use any diffuse naturally occurring or diffuse accelerator produced radioactive materials, including TENORM, in this State unless authorized by a specific [State] license issued by the Department as provided by *N.J.A.C. 7:28-4.7* and 4.8, a general [State] license as provided in *N.J.A.C. 7:28-4.5*, or an exemption as provided in *N.J.A.C. 7:28-4.3*. [Excepted from this provision are byproduct, source and special nuclear materials.]

(c) A person who sells, transfers, distributes or arranges for the distribution of a device containing diffuse naturally occurring or diffuse accelerator produced radioactive materials manufactured by another person, but which is sold, transferred or distributed under its own name, shall obtain a [State] license in accordance with this subchapter.

§ 7:28-4.2 Recognition of licenses from other jurisdictions

(a) Any person who possesses a specific license or equivalent licensing document issued by a Federal agency or any other state is granted a general license in this state provided that the provisions of paragraph (b) have been met.

(b) Any person who possesses a specific license or equivalent licensing document issued by a Federal agency or any other state may, pursuant to [such document] the general license in paragraph (a), transport, receive, possess, or use the radioactive materials specified in such license within this State for a period not in excess of [20] 180 days in any period of 12 consecutive months without obtaining a specific license from the Department provided that:

1. The license does not limit the activity to specified installations or locations;

2. The licensee notifies the Department in writing at least [two] three days prior to the time that such radioactive material is brought into this State. Such notification shall indicate the location, period, and type of proposed possession and use within this State, and shall be accompanied by a copy of the pertinent licensing document. If in a specific case the [two]three-day period would impose an undue hardship on the user, he may, upon application to the Department, obtain permission to proceed sooner;

3. The licensee complies with all the terms and conditions of [the] their specific license;

4. The licensee provides such other information as the Department may request; and

([b]c) The Department may withdraw, limit or qualify its acceptance of such licenses issued by another agency, or any product distributed pursuant to such licensing documents, upon determining that such action is necessary in order to prevent undue hazard to public health and safety or property.

§ 7:28-4.3 Exemption from requirement for a [State] license for manufacture, production, transfer, distribution or arrangement of distribution, sale, lease, receipt, acquisition, ownership, possession or use of all diffuse naturally occurring or diffuse accelerator produced radioactive materials

(a) A person shall be exempt from the requirement to obtain a [State] license for the following activities:

1. The person is a plant or laboratory owned by or operated on behalf of a Federal agency;

2. The person is a common or contract carrier and is transporting or storing radioactive materials covered by *N.J.A.C. 7:28-4.7* in the regular course of carriage for another, or storage incident thereto;

3. The person manufactures, produces, receives, possesses, uses, transfers, distributes or arranges for the distribution, sells, leases, owns or acquires products or materials containing diffuse naturally occurring or diffuse accelerator produced radioactive materials in concentrations not in excess of those exempted in *N.J.A.C. 7:28-4.3(b)*;

[4. The person manufactures, receives, possesses, uses, transfers, distributes or arranges for the distribution, sells, leases, owns or acquires luminous timepieces or parts thereof containing radium. However, any person who desires to apply radium to luminous timepieces or parts thereof is not exempt and must obtain a specific State license;] Reserved.

5. The person owns or possesses naturally occurring radioactive materials, occurring in natural abundance and which are not technologically enhanced naturally occurring radioactive materials, whether intentionally or unintentionally;

6. The person who receives, owns, possesses, uses, processes, transfers, distributes, arranges for the distribution, sells or leases technologically enhanced naturally occurring radioactive materials (TENORM) if the TENORM contain any combination of Radium-226 and Radium-228 at concentrations less than five pCi/g (185 Bq/kg) (dry weight) above background and less than the quantity listed in (c) below;

7. The person owns property where radon gas is being expelled to the outside atmosphere as part of a radon remediation system installed in accordance with the provisions of N.J.A.C. 7:28-27;

8. The person owns a [sanitary sewer system] domestic treatment works where [residuals are] sewage sludge is present which may contain TENORM from the separation of liquids and solids which is the outcome of normal operations of the [sanitary sewer system] domestic treatment works;

9. The person is involved with the distribution, including custom blending, possession, and use of fertilizers containing TENORM; and

10. The person owns property where residual contamination remaining at the site was remediated under the Radiation Protection Act (*N.J.S.A. 26:2D-1* et seq.) and/or the other authorities listed in the Soil Remediation Standards at *N.J.A.C. 7:28-12.2(a)*. Such residual concentrations may be greater than the limits specified in (a)6 above, but be under restricted conditions imposed by the Department (such as engineering and institutional controls), and meet the dose criteria specified in *N.J.A.C. 7:28-12.8(a)*.

(b) The following concentrations of [NARM] diffuse naturally occurring radioactive materials, including TENORM, and diffuse accelerator-produced radioactive materials, when obtained from naturally occurring materials or when produced by an accelerator are exempt from the requirements for a [State] license:

Exempt Concentrations

Element (nuclide)	Column 1 Gas concentration (uCi/ml)	Column 2 Liq. & solid concentration (uCi/ml) ****
Argon (Ar-37)	1 x 10<-3>	--

Arsenic (As-73)	--	5 x 10<-3>
(As-74)	--	5 x 10<-4>
Barium (Ba-131)	--	2 x 10<-3>
Beryllium (Be-7)	--	2 x 10<-2>
Bismuth (Bi-206)	--	4 x 10<-4>
(Bi-207) *	--	2 x 10<-4>
Cadmium (Cd-109)	--	2 x 10<-3>
Chromium (Cr-51)	--	2 x 10<-2>
Cobalt (Co-56) *	--	1.2 x 10<-4>
(Co-57)	--	5 x 10<-3>
(Co-58)	--	1 x 10<-3>
Dysprosium (Dy-159) *	--	4 x 10<-3>
Fluorine (F-18)	2 x 10<-6>	8 x 10<-3>
Gallium (Ga-67) *	--	2 x 10<-3>
Germanium (Ge-68) *	--	1.2 x 10<-3>
(Ge-71)	--	2 x 10<-2>
Gold (Au-196)	--	2 x 10<-3>
(Au-199)	--	2 x 10<-3>
Indium (In-111) *	--	1.2 x 10<-3>
(In-113m)	--	1 x 10<-2>
Iodine (I-123) *	4 x 10<-7>	2 x 10<-3>
(I-124) *	8 x 10<-9>	4 x 10<-5>
Iridium (Ir-190)	--	2 x 10<-3>
(Ir-192)	--	4 x 10<-4>

Iron (Fe-55)	--	8 x 10<-3>
Krypton (Kr-85m)	1 x 10<-6>	--
Lead (Pb-201) *	--	2 x 10<-3>
(Pb-203)	--	4 x 10<-3>
(Pb-210) *	--	2 x 10<-7>
Manganese (Mn-52)	--	3 x 10<-4>
(Mn-54)	--	1 x 10<-3>
Mercury (Hg-197m)	--	2 x 10<-3>
(Hg-197)	--	3 x 10<-3>
Neptunium (Np-237) *	--	4 x 10<-7>
Palladium (Pd-103)	--	3 x 10<-3>
Platinum (Pt-191)	--	1 x 10<-3>
(Pt-193m)	--	1 x 10<-2>
(Pt-197m)	--	1 x 10<-2>
Radium (Ra-226) *	--	1.2 x 10<-6>
(Ra-228)	--	4 x 10<-11>
Rhenium (Re-183)	--	6 x 10<-3>
Rubidium (Rb-81) *	--	1 x 10<-2>
(Rb-83) *	--	1.8 x 10<-4>
(Rb-84) *	--	1.4 x 10<-4>
Ruthenium (Ru-97)	--	4 x 10<-4>
Samarium (Sm-153)	--	8 x 10<-4>
Scandium (Sc-48)	--	3 x 10<-4>
Silver (Ag-105)	--	1 x 10<-3>

(Ag-111)	--	4 x 10<-4>
Sodium (Na-22) *	--	1.2 x 10<-4>
Tantalum (Ta-179) *	--	6 x 10<-3>
Technetium (Tc-96)	--	1 x 10<-3>
Thallium (Tl-200)	--	4 x 10<-3>
(Tl-201)	--	3 x 10<-3>
(Tl-202)	--	1 x 10<-3>
** Thorium (Th-228) *	--	4 x 10<-6>
(Th-230) *	--	2 x 10<-6>
(Th-232) *	--	6 x 10<-7>
(Th-234) *	--	1 x 10<-4>
Thulium (Tm-170)	--	5 x 10<-4>
Tungsten (Wolfram)	--	4 x 10<-3>
(W-181)		
** Uranium (U-234) *	--	6 x 10<-6>
(U-235) *	--	6 x 10<-6>
(U-238) *	--	6 x 10<-6>
Vanadium (V-48)	--	3 x 10<-4>
Yttrium (Y-88) *	--	2 x 10<-4>
(Y-92)	--	6 x 10<-4>
Zinc (Zn-69m)	--	7 x 10<-4>
Any other beta/gamma emitter with	1 x 10<-10>	1 x 10<-6>
half-life <3 years		

* The values for those [NARM] diffuse naturally occurring radioactive materials [nuclides] and diffuse accelerator produced radioactive materials , including TENORM, that are followed by a single asterisk(*) are based upon multiplying 20 times the most restrictive release concentrations specified in 10 CFR 20 Appendix B, Table 2, Columns 1 (air) and 2 (water).

** These concentrations do not apply to source material as defined by the NRC for thorium and uranium.

*** uCi/g for solids

1. Many radioisotopes disintegrate into isotopes which are also radioactive. In expressing the concentrations in this section, the value given is that of the parent isotope and takes into account the radioactivity of the daughters.

2. For purposes of *N.J.A.C. 7:28-4.3(a)*3, where a combination of isotopes is involved, the limit for the combination shall be computed as follows:

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

Example:

Concentration of Isotope A		Concentration of Isotope B	
in Product		in Product	
.....	+	.....	<=1
Exempt concentration of		Exempt concentration of	
Isotope A		Isotope B	

(c) If a person manufactures, produces, transfers, distributes or arranges for the distribution, sells, leases, receives, acquires, owns, possesses or uses [NARM] diffuse naturally occurring radioactive materials or diffuse accelerator produced radioactive materials, including TENORM, in quantities less than those listed in *N.J.A.C. 7:28-4.5(c)*, they are exempt from the requirement for a license.

§ 7:28-4.4 Types of licenses for manufacture, production, transfer, distribution or arrangement for distribution, sale, lease, receipt, acquisition, ownership, possession or use of all diffuse naturally occurring or diffuse accelerator produced radioactive materials

(a) General [State] licenses described in *N.J.A.C. 7:28-4.5* are effective without the filing of an application with the Department or the issuance of licensing documents to particular persons.

(b) Specific [State] licenses are issued to named persons upon application filed pursuant to the requirements of this subchapter.

§ 7:28-4.5 General licenses for the transfer, distribution or arrangement for distribution, sale, lease, receipt, acquisition, ownership, possession or use of diffuse naturally occurring or diffuse accelerator produced radioactive materials and certain devices and equipment

(a) Any person who uses, transfers, distributes or arranges for the distribution, sells, leases, receives, acquires, owns or possesses the following devices and equipment incorporating diffuse naturally occurring or diffuse accelerator produced radioactive material, when manufactured, tested and labeled by the manufacturer in accordance with the specifications contained in a specific license issued by the Department, or a specific license of a Federal agency or any other state, shall be deemed to have a general [State] license:

1. Devices designed for use as static eliminators and which contain, as a sealed source or sources, radioactive material consisting of a total of not more than 500 microcuries of Polonium 210 or 50 microcuries of Radium 226 per device;

2. Spark gap tubes and electronic tubes which contain radioactive material consisting of not more than one microcurie of Radium per tube;

3. Devices designed for ionizing of air and which contain, as a sealed source or sources, radioactive material consisting of a total of not more than 500 microcuries of Polonium 210 or 50 microcuries of Radium 226 per device.

(b) The devices described in (a) above shall not be transferred, abandoned or disposed of except by transfer to a person duly authorized to receive such device by a specific [State] license issued by the Department, a Federal agency, or any other state.

(c) The following quantities of radioactive substances, when obtained from diffuse naturally occurring materials or [when produced by an] diffuse accelerator produced radioactive materials, at any one time possess or use more than a total of 10 such quantities:

Radioactive Material	Column A Not as a Sealed Source (microcuries)	Column B As a Sealed Source (microcuries)
Beryllium (Be-7)	50	50
Bismuth 207 (Bi-207)	1	10
Cadmium 109-Silver 109 (Cd 109 + Ag 109)	10	10
Cerium 141 (Ce-141)	1	10
Chromium 51 (Cr-51)	50	50
Cobalt 57 (Co-57)	20	20

Germanium 68 (Ge-68)	1	10
Iron 55 (Fe-55)	50	50
Manganese 52 (Mn-52)	1	10
Polonium 210 (Po-210)	0.1	1
Radium and daughters	0.1	1
Sodium 22 (Na-22)	10	10
Vanadium 48 (V-48)	1	10
Zinc 65 (Zn-65)	10	10
Beta and/or gamma emitting radioactive material not listed above	1	10

(d) There are no generally licensed quantities for alpha-emitting materials other than those set forth in *N.J.A.C. 7:28-4.5(c).*

(e) Any person who owns, receives, acquires, possesses or uses radioactive material when contained in a device designed and manufactured for the purpose of detecting, measuring, gauging or controlling thickness, density, level, interface location, radiation, leakage, or qualitative or quantitative chemical composition or for producing light or an ionized atmosphere, when such devices are manufactured in accordance with the specifications contained in a specific license authorizing distribution under a general license issued to the supplier by the Department, a Federal agency, or any other state, is deemed to have a general [State] license, provided that:

1. The device is labeled in accordance with the provisions of the specific license which authorizes the distribution of the devices;

2. The device bears a label containing the following or a substantially similar statement:

"This device contains radioactive material and has been manufactured for distribution as a generally licensed device pursuant to

.....

(identify appropriate section of the rules)

.....

(name of licensing agency and state)

License No. ..... by ..... (name of supplier)

This device shall not be transferred, abandoned or disposed of except by transfer to a person duly authorized to receive such device by a specific license issued by the Department, a Federal agency, or any other state.

Removal of this label is prohibited."; and

3. The devices requiring special installation shall be installed on the premises of the general licensee by a person authorized to install the devices under a specific license issued to the installer by the Department, a Federal agency, or any other state.

(f) Persons who transfer, distribute or arrange for the distribution, sell, lease, receive, acquire, own, possess or use items and quantities of radioactive materials set forth in *N.J.A.C. 7:28-4.5(a)* and (c) pursuant to a general [State] license shall not:

1. Effect an increase in the radioactivity of such scheduled items or quantities by adding other radioactive material thereto, by combining radioactive material from two or more such items or quantities, or by altering them in any other manner so as to increase the rate of radiation emission;

2. Administer or direct the administration of the scheduled items or quantities or any part thereof to a human being, either externally or internally, for any purpose, including, but not limited to, diagnostic, therapeutic and research purposes;

3. Add or direct the addition of the scheduled items or quantities or any part thereof to any food, beverage, cosmetic, drug or other product designed for ingestion or inhalation by, or application to, a human being; or

4. Include the scheduled items or quantities or any part thereof in any device, instrument, apparatus, including component parts and accessories intended for use in diagnosis, treatment or prevention of disease in human beings or animals or otherwise intended to affect the structure or any function of the body of human beings or animals.

(g) Persons who receive, acquire, possess or use a device pursuant to a general license specified in *N.J.A.C. 7:28-4.5(a)*:

1. Shall not transfer, abandon or dispose of the device except by transfer to a person duly authorized to receive such device by a specific license issued by the Department, a Federal agency, or any other state;

2. Shall assure that all labels affixed to the device at the time of receipt and bearing the statement, "Removal of this label is prohibited", are maintained thereon and shall comply with the instructions contained in such labels;

3. Shall have the device tested for leakage of radioactive material and proper operation of the on-off mechanism and indicator, if any, at intervals not to exceed six months [except that devices containing only tritium need not be tested for any purpose and devices containing only krypton need not be tested for leakage];

4. Shall have the tests required by *N.J.A.C. 7:28-4.5(g)*3 and all other services involving the radioactive material, its shielding and containment, performed by the supplier or other person duly authorized by a specific license issued by the Department, a Federal agency, or any other state to manufacture, install or service such devices;

5. Shall maintain records of all tests performed on the devices as required under *N.J.A.C. 7:28-4.5(g)*3, including the dates and results of the tests and the names and addresses of the persons conducting the tests;

6. Upon the occurrence of a failure of or damage to, or any indication of a possible failure of or damage to, the shielding or containment of the radioactive material or the on-off mechanism or indicator, shall immediately suspend operation of the device until it has been either:

i. Repaired by a supplier, manufacturer, or other person holding a specific license issued by the Department, a Federal agency, or any other state to manufacture, install or service such devices; or

ii. Disposed of by transfer to a person holding a specific license issued by the Department, a Federal agency, or any other state to receive the radioactive material contained in the device; and

7. Shall be exempt from the requirements of this subchapter, except the provisions of *N.J.A.C. 7:28-4.4(a)*, 4.9, 4.14, 4.18, 8.[2]3, 8.[4]5, and 13.

§ 7:28-4.6 Application for and renewal of specific [State] licenses for manufacture, transfer, distribution or arrangement for distribution, sale, lease, receipt, acquisition, ownership, possession or use of diffuse naturally occurring or diffuse accelerator produced radioactive materials

(a) Upon approval of an initial or renewal application, a specific [State] license may be issued by the Department for a period of [five] ten years commencing on the date the license is issued.

(b) Application for specific [State] licenses and renewals shall be filed with the Department, on forms available from the Department.

(c) All applications shall contain the following signature and certification:

1. "I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil and criminal penalties for submitting false, inaccurate or incomplete information, including fines and/or imprisonment."

2. The certification shall be signed by the highest ranking corporate, partnership, or governmental officer or official at the facility or the individual for which or for whom the specific [State] license is requested.

(d) An application for a specific [State] license may include a request for a [State] license authorizing one or more activities.

[(e) Subject to the provisions of *N.J.A.C. 7:28-4.7* and 4.8, an application for a specific State license for any human use or uses of radioactive material specified in one or more of the Human Use activity Groups I to VI inclusive listed in *N.J.A.C. 7:28-4.7(b)* may be approved for all of the uses within the group or groups which include the use or uses specified in the application.]

([f]e) Information included in the specific [State] license application will be incorporated in and made a part of the terms and conditions of such license by reference.

([g]f) All applicants for initial and renewal applications for specific [State] licenses shall complete the application in its entirety with no reference to previously filed documents. The Department may accept photocopies of previous relevant applications.

([h]g) No initial or renewal specific [State] licenses shall be issued unless the appropriate annual license fee required by *N.J.A.C. 7:28-4.18* is paid.

([i]h) Except as provided in *N.J.A.C. 7:28-4.[20]19*, applications and documents submitted to the Department will be made available for public inspection.

([j]i) Upon the request of the Department at any time after the filing of the original or renewal specific [State] license application, and before the expiration of the license, the applicant shall submit further information to enable the Department to determine whether the application should be granted or denied or whether a license should be modified or revoked.

([k]j) All applications for a [State] license or amendment shall be signed by the applicant or [State] licensee or a person duly authorized to act for and on his behalf.

(l) The Department may deny an application for a specific [State] license if the applicant:

1. Fails to comply with any provisions of the Act or any rules promulgated there under;

2. Falsifies or makes misleading statements in the application for license; or

3. Falsifies or makes misleading statements in any documents which were utilized to obtain a license.

§ 7:28-4.7 General requirements for approval of an application for an initial specific [State] license or renewal of a specific [State] license for use of diffuse naturally occurring or diffuse accelerator produced materials

(a) If the Department determines that an applicant meets the requirements of this subchapter and the Act, it may issue an initial specific [State] license or renew a specific [State] license for non-human use of radioactive materials provided:

1. The applicant is qualified by reason of training and experience to use the radioactive material for the purpose requested in such manner as to protect health, minimize danger to life or property and prevent unnecessary radiation;

2. The applicant's proposed equipment, facilities and procedures are adequate to protect health, minimize danger to life or property and prevent unnecessary radiation; and

3. The applicant satisfies special requirements as may be applicable in *N.J.A.C. 7:28-4.8*.

[(b) If the Department determines that an applicant meets the requirements of this subchapter and the Act, it may issue an initial specific State license or renew a specific State license for human use of radioactive materials for one or more of the following Human Use Groups of activities:

1. Group I: Use of prepared radiopharmaceuticals for certain diagnostic studies involving measurements of uptake, dilution and excretion. This group does not include imaging or localization studies;

2. Group II: Use of prepared radiopharmaceuticals for diagnostic imaging and localization studies;

3. Group III: Use of generators and reagent kits for the preparation and use of radiopharmaceuticals for certain diagnostic studies;

4. Group IV: Use of prepared radiopharmaceuticals for certain therapeutic uses that do not normally require hospitalization for purposes of radiation safety;

5. Group V: Use of prepared radiopharmaceuticals for certain therapeutic uses that normally require hospitalization for purposes of radiation safety; and

6. Group VI: Use of sources and devices containing radionuclides for certain medical uses.

(c) To qualify for an initial specific State license or renewal of a specific State license for human use of radioactive materials for any purpose described in Groups I though VI in (b) above, the applicant

must demonstrate qualification by reason of training and experience to use the radioactive material for the purpose requested and in such manner as to protect health, minimize danger to life or property, and prevent unnecessary radiation, by satisfying the training and experience requirements for the appropriate Human Use Group of activities as follows:

1. The training and experience must have been obtained within a five year period preceding the date of the application for an initial or renewal specific State license or must be supplemented by continuing education or experience. The original training and experience should have been received in a formal residency program in an accredited medical institution. Each applicant's training and experience are examined on a case-by-case basis. If an applicant wishes to use radiopharmaceuticals but does not have the training and experience described, the applicant may submit an application listing specific qualifications and these will be considered by the Department.

2. To qualify as adequately trained to use or directly supervise the use of radioactive material listed in Human Use Groups I, II, and/or III, an applicant shall have all the training and experience specified in (c)2i, ii and iii below;

i. Two hundred hours training in basic radioisotope handling techniques applicable to the use of unsealed sources. This training shall consist of lectures, laboratory sessions, discussion groups, or supervised experience in a nuclear medicine laboratory (that is, on-the-job training in a formalized training program) in the following areas and for the specific hours of class, laboratory or clinical experience:

(1) Radiation physics and instrumentation (100 hours);

(2) Radiation protection (30 hours);

(3) Mathematics pertaining to the use and measurement of radioactivity (20 hours);

(4) Radiation biology (20 hours); and

(5) Radiopharmaceutical chemistry (30 hours);

ii. Five hundred hours of experience with the types and quantities of radioactive material for which the application is being made. For authorization of Human Use Group III (generators and reagent kits), this experience shall include personal participation in five elution procedures, including testing of eluate, and in five procedures to prepare radiopharmaceuticals from Human Use Group III reagent kits; and

iii. Five hundred hours of supervised clinical training in an institutional nuclear medicine program. The clinical training shall cover all appropriate types of diagnostic procedures and shall include:

(1) Supervise examination of patients to determine the suitability for radioisotope diagnosis and recommendation on dosage to be prescribed;

(2) Collaboration in calibration of the dose and the actual administration of the dose to the patient, including calculation of the radiation dose, related measurement, and plotting data;

(3) Follow-up of patients when required; and

(4) Study and discussion with preceptor of case histories to establish most appropriate diagnostic procedures, limitation, contraindication, etc.

3. The requirements specified in (c)2i, ii and iii above may be satisfied concurrently in a three month training program if all three areas are integrated into the program.

4. Certification by the American Board of Nuclear Medicine, or the American Board of Radiology in Diagnostic Radiology with Special Competence in Nuclear Radiology, will be accepted as evidence that an applicant has had adequate training and experience to use Human Use Groups I, II, and III as specified in (c)2i, ii and iii above.

5. An applicant who wishes to be authorized for only one or two specific diagnostic procedures shall have training in basic radioisotope handling techniques and clinical procedures commensurate with the procedures and quantities of radioactive material being requested. Such requests will be examined on a case-by-case basis by the Department.

6. To qualify as adequately trained to use or directly supervise the use of radioactive material listed in Groups IV and or V, an applicant shall have:

i. Eighty hours training in basic radioisotope handling techniques applicable to the use of unsealed sources for therapy procedures, consisting of lectures, laboratory sessions, discussion groups or supervised experience in the following areas and for the following specific hours:

(1) Radiation physics and instrumentation (25 hours);

(2) Radiation protection (25 hours);

(3) Mathematics pertaining to the use and measurement of radioactivity (10 hours); and

(4) Radiation biology (20 hours);

7. To qualify as adequately trained to use or directly supervise the use of radioactive material listed in Group VI an applicant shall have:

i. Two hundred hours training in basic radioisotope handling techniques applicable to the use of sealed sources for therapy procedures, consisting of lectures, laboratory sessions, discussion groups, or supervised experience in the following areas and for the following specified hours:

(1) Radiation physics and instrumentation (110 hours);

(2) Radiation protection (40 hours);

(3) Mathematics pertaining to the use and measurements of radioactivity (25 hours); and

(4) Radiation biology (25 hours);

ii. Five hundred hours experience with the types and quantities of radioactive material for which the application is made;

iii. Clinical training in Group VI procedures consisting of active practice in therapeutic radiology with a minimum of three years experience of which at least one year shall have been spent in a formal training program accredited by the Residency Review Committee of Radiology and the Liaison Committee on Graduate Medical Education; and

iv. Evidence of certification by the American Board of Radiology in Radiology or Therapeutic Radiology, certification as a British "Fellow of the Faculty of Radiology" (FFR) or "Fellow of the Royal College of Radiology" (FRCR), or Canadian certification from the Royal College of Physicians and Surgeons (RCPS) in therapeutic radiology may be submitted in lieu of the training required in (c)7i and iii above.

8. In addition to the training required by (c)7 above, an applicant for a specific State license for Human Use Group VI activities shall demonstrate that its proposed equipment, facilities and procedures are adequate to protect health, minimize danger to life or property and prevent unnecessary radiation; and

9. An applicant for a specific State license for Human Use Group VI activities shall satisfy special requirements as may be applicable in *N.J.A.C. 7:28-4.8.*]

§ 7:28-4.8 Special requirements for approval of an application for an initial specific [State] license or renewal of a specific [State] license for use of <u>diffuse</u> naturally occurring or <u>diffuse</u> accelerator produced radioactive materials

[(a) If the Department determines that an applicant meets the requirements of this subchapter and the Act, an initial specific State license or renewal of a specific State license may be issued for human use of radioactive materials by an institution provided:

1. The applicant satisfies the general requirements for approval of specific State license applications in *N.J.A.C. 7:28-4.7*;

2. The applicant has appointed a medical isotopes committee to evaluate all proposals for research, diagnosis, and therapeutic use of radioactive material within that institution. Membership of the committee shall include one authorized user for each type of use permitted by the specific State license, the radiation safety officer, a representative of the nursing service, and a representative of management who is neither an authorized user nor a radiation safety officer;

3. The applicant possesses adequate facilities for the clinical care of patients;

4. The physician(s) designated on the application as the individual user(s) has considerable pertinent training and experience in the use, handling and administration of radioactive material and, where applicable, the clinical management of radioactive patients; and

5. If the application is for a specific State license to use unspecified quantities of multiple types of radioactive materials, the applicant's staff has had substantial pertinent experience in using a variety of radioactive materials for various human uses.

(b) If the Department determines that an applicant meets the requirements of this subchapter and the Act, an initial specific State license or renewal of a specific State license may be issued for human use of radioactive materials by a physician or dentist provided:

1. The applicant satisfies the general requirements for approval of specific State license applications in *N.J.A.C. 7:28-4.7*;

2. The applicant has access to a hospital possessing adequate facilities to hospitalize and monitor the applicant's radioactive patient whenever it is advisable; and

3. The applicant has had extensive training and supervised experience in the proposed use, the handling and administration of radioisotopes and, where applicable, the clinical management of radioactive patients. The applicant shall furnish suitable evidence of such experience with his application. A statement from the institution where the applicant acquired the training and experience, indicating its amount and nature, may be submitted as evidence of such experience.

(c) If the Department determines that an applicant meets the requirements of this subchapter and the Act, an initial specific State license or renewal of a specific State license may be issued for human use of a sealed source of radioactive materials provided:

1. The applicant satisfies the general requirements for approval of specific State license applications in *N.J.A.C. 7:28-4.7*;

2. The applicant or, if the application is made by an institution, the individual user(s) has specialized training in therapeutic use of the radioactive device considered or has experience equivalent to such training; and

3. The individual user is a physician or dentist.]

([d]a) If the Department determines that an applicant meets the requirements of this subchapter and the Act, an initial specific [State] license or renewal of a specific [State] license may be issued for use of multiple quantities or types of radioactive material [in research and development] provided:

1. The applicant satisfies the general requirements for approval of specific [State] license applications in *N.J.A.C. 7:28-4.7*;

2. The applicant's staff has had substantial training and experience with a variety of radioisotopes for various research and development uses;

3. The applicant has established an isotope committee, composed of a radiological safety officer, a representative of management and one or more persons trained or experienced in the safe use of radioactive materials, which will review and approve or disapprove proposals for use of radioactive materials in the advance of purchase of such materials; and

4. The applicant has appointed a radiological safety officer who shall be responsible for rendering advice and assistance on radiological safety.

([e]b) If the Department determines that an applicant meets the requirements of this subchapter and the Act, an initial specific [State] license or renewal of a specific [State] license may be issued for use of multiple quantities or types of radioactive material in processing for distribution to other authorized persons provided:

1. The applicant satisfies the general requirements for approval of specific [State] license application in *N.J.A.C. 7:28-4.7*;

2. The applicant's staff has had training and experience in the processing and distribution of a variety of radioisotopes; and

3. The applicant has appointed a radiological safety officer who shall be responsible for rendering advice and assistance on radiological safety.

([f]c) If the Department determines that an applicant meets the requirements of this subchapter and the Act, an initial specific [State] license or renewal of a specific [State] license may be issued to distribute certain devices to persons generally licensed under *N.J.A.C. 7:28-4.5(a)* and (e) provided:

1. The applicant satisfies the general requirements for approval of specific [State] license applications in *N.J.A.C. 7:28-4.7*;

2. The applicant submits sufficient information relating to the design, manufacturer prototype testing, quality control procedures, labeling, proposed uses and potential hazards of the device to provide reasonable assurance that:

i. The radioactive material contained in the device cannot be easily removed from the device;

ii. No person possessing, using, transporting or exposed to the device will receive a radiation dose to a major portion of his body in excess of [0.5] 0.1 rem in any one year under ordinary circumstances of use;

iii. The device can be safely operated by persons not having training in radiological protection; and

iv. The radioactive material within the device would not be accessible to unauthorized persons; and

3. In describing the label or labels and contents thereon to be affixed to the device, the applicant shall separately indicate those instructions and precautions which are necessary to assure safe operation of the device. Such instructions and precautions shall be contained on labels as described in *N.J.A.C. 7:28-4.5(e)*.

[(g) If the Department determines that an applicant meets the requirements of this subchapter and the Act, an initial specific State license or renewal of a specific State license may be issued for use of a sealed source or sources of radioactive materials in industrial and nonmedical radiography provided:

1. The applicant satisfies the general requirements for approval of specific State license applications in *N.J.A.C. 7:28-4.7*;

2. The applicant has an adequate program for training radiographers and radiographers' assistants and submits to the Department a schedule or description of such program which specifies the following:

i. Initial training;

ii. Periodic training;

iii. On-the-job training;

iv. Means to be used by the specific [State] licensee to determine the radiographer's knowledge and understanding of and ability to comply with the requirements of this subchapter, the specific licensing requirements, and the operation and emergency instructions of the applicant; and

v. Means to be used by the specific State licensee to determine the radiographer's assistant's knowledge and understanding of and ability to comply with the operating and emergency procedures of the applicant;

3. The applicant has established and submitted to the Department satisfactory written operating and emergency instructions as prescribed by N.J.A.C. 7:28-17;

4. The applicant will have an adequate internal inspection system, or other management control, providing assurance that the requirements of this chapter, the specific State license provisions, and the applicant's operating and emergency instructions are followed by radiographers and radiographers' assistants;

5. The applicant submits a description of its overall organizational structure pertaining to the radiography program, including specified delegation of authority and responsibility for operation of the program; and

6. The applicant who desires to conduct his own leak tests has established adequate procedures to be followed in leak testing sealed sources for possible leakage and contamination and submits to the Department a description of such procedures, including:

i. Instrumentation to be used;

ii. Method of performing test (for example, points on equipment from where wipe samples will be taken and method of obtaining the wipe sample); and

iii. Pertinent experience of the person who will perform the test.]

([h]d) If the Department determines that an applicant meets the requirements of this subchapter and the Act, an initial specific [State] license or renewal of a specific [State] license will be issued to transfer, possess, or control products or materials containing exempt concentrations of radioactive material specified in *N.J.A.C. 7:28-4.3(b)* which the transferor has introduced into the product or material provided:

1. The applicant satisfies the general requirements for approval of specific [State] license applications in *N.J.A.C. 7:28-4.7*;

2. The applicant submits:

i. A description of the product or material into which the radioactive material will be introduced;

ii. The intended use of the radioactive material and the product into which it is introduced;

iii. The method of introduction;

iv. The initial concentration of the radioactive material in the product or material;

v. The control methods to assure that no more than the specified concentration is introduced into the product or material;

vi. The estimated time interval between introduction and transfer of the product or material; and

vii. The estimated concentration of the radioisotope in the product or material at the time of proposed transfer by the applicant;

3. The applicant provides:

i. Reasonable assurance that the concentrations of the radioactive material at the time of transfer will not exceed the exempt concentrations listed in *N.J.A.C. 7:28-4.3(b)*;

ii. That reconcentration of the radioactive material in concentrations exceeding those exempted under *N.J.A.C. 7:28-4.3(b)* is not likely;

iii. That the product or material is not likely to be inhaled or ingested; and

iv. That use of the lower concentration(s) is not feasible; and

4. Within 30 days subsequent to the end of the reporting period, each specific [State] licensee shall file an annual report with the Department describing kinds and quantities of products transferred, the concentration of radioactive material contained and the quantity of radioactive material transferred during the reporting period which shall be the 12-month period ending June 30 of each calendar year.

[(i) If the Department determines that an applicant meets the requirements of this subchapter and the Act, an initial specific State license or renewal of a specific State license may be issued to distribute certain devices to persons specifically licensed under *N.J.A.C. 7:28-4.7* provided:

1. The applicant satisfies the general requirements for approval of specific State license applications in *N.J.A.C. 7:28-4.7*;

2. The applicant submits sufficient information relating to the design, manufacture, prototype testing, quality control procedures, labeling, proposed uses and potential hazards of the device to provide reasonable assurance that:

i. The radioactive material contained in the device cannot be easily removed;

ii. The device can be safely operated by persons having trained in radiological protection; and

iii. The radioactive material within the device would not be accessible to unauthorized persons; and

3. Each device distributed as authorized by such specific State license is to bear a label containing the following or substantially similar statements:

i. "Caution: Radioactive Materials";

ii. The isotope name;

iii. The isotope quantity and date; and

iv. The following statement:

"This device contains radioactive material and has been manufactured for distribution as a specifically State licensed device pursuant to .....

.....

(identify appropriate section of the regulation)

.....

(name of licensing agency and state)

License No. ..... by .....(name of supplier)

Disposal of this device shall conform to the requirements listed in *N.J.A.C. 7:28-4.5(g)*6ii of the Radiation Protection Code. Removal of this label is prohibited."]

§ 7:28-4.9 Terms and conditions of general and specific [State] licenses

(a) Each [State] license issued pursuant to this subchapter shall be subject to all the provisions of the Act, now or hereafter in effect, and to this chapter and orders of the Department.

(b) No [State] license to possess or utilize radioactive material pursuant to this subchapter shall be transferred or assigned.

(c) Each person licensed by the Department pursuant to this subchapter shall confine his or her possession and use of radioactive material to the locations and purposes authorized by such [State] license, and shall not use or permit the use of radioactive materials contrary to the applicable requirements of this chapter. Persons licensed under the provisions of this subchapter may transfer radioactive material within the State only to the persons licensed to receive such material or as otherwise authorized by the Department in writing.

(d) The Department may incorporate in any [State] license at the time of issuance, or thereafter, all such additional requirements and conditions with respect to the [State] licensee's manufacture, distribution or arrangement for the distribution, sale, lease, receipt, possession, use, ownership or transfer of radioactive material as it deems appropriate or necessary in order to assure compliance with this chapter and the Act.

(e) Each [State] licensee authorized under *N.J.A.C. 7:28-4.8([f]c)* to distribute certain devices to generally licensed persons shall:

1. Report to the Department all transfers of such devices to persons in New Jersey generally licensed under *N.J.A.C. 7:28-4.5(a)* and (c). Such report shall identify each general licensee by name and address, the type and number of device(s) transferred, and the quantity and kind of radioactive material contained in each device. The report shall be submitted within 30 days after the end of each calendar quarter in which such a device is transferred to generally licensed persons; and

2. Furnish to each general licensee to whom such device is transferred a copy of *N.J.A.C. 7:28-4.5(a)*, (e) and (g), 8.[2]3 and 8.[4]5.

[(f) Each State licensee authorized under *N.J.A.C. 7:28-4.8(i)* to distribute certain devices to specifically licensed persons shall:

1. Report to the Department all transfers of such devices to persons in New Jersey specifically licensed under *N.J.A.C. 7:28-4.7* and 4.8. Such report shall identify each specific licensee by name and address, the type and number of device(s) transferred, and the quantity and kind of radioactive material contained in each device. The report shall be submitted within 30 days after the end of each calendar quarter in which such a device is transferred to specifically licensed persons.]

§ 7:28-4.10 Expiration of specific [State] license

Except as provided in *N.J.A.C. 7:28-4.11*, each specific [State] license shall expire at 12:01 A.M. of the day, in the month and year stated in the license.

§ 7:28-4.11 Status of specific [State] licenses pending renewal

In any case in which a specific [State] licensee has filed a complete application in proper form for renewal of a specific [State] license not less than 30 days prior to expiration of the existing specific [State] license, such specific [State] license and all its existing conditions shall not expire until the Department has acted upon the application.

§ 7:28-4.12 Amendment of a specific [State] license at request of licensee

(a) Applications for amendment of a specific [State] license shall be filed in accordance with *N.J.A.C. 7:28-4.6* and shall specify the amendment desired and the grounds for such amendment.

(b) The Department will evaluate only amendment applications submitted by personnel authorized by the [State] licensee.

(c) The applicant for an amended specific [State] license shall not engage in the activities for which an amendment has been requested until approval has been granted by the Department.

§ 7:28-4.13 Records

All persons licensed pursuant to this subchapter shall keep records in accordance with N.J.A.C. 7:28-8 (Records).

§ 7:28-4.14 Inspections

(a) All [State] licensees shall allow the Department or its agents to inspect radioactive material and the facilities and premises where radioactive material is used or stored.

(b) No person shall prevent, prohibit, obstruct, hinder, delay or interfere with personnel of this Department or its agents in performing their duties.

(c) Upon request by the Department, or its agents, [State] licensees shall make available for inspection by the Department records kept pursuant to this chapter.

§ 7:28-4.15 Tests

(a) At the request of the Department or its agents, each [State] licensee shall perform, or allow the Department to perform if the Department so desires, such tests as the Department deems appropriate or necessary for the administration of this subchapter, including tests of the following:

1. Radioactive material;

2. Facilities where radioactive material is utilized or stored;

3. Radiation detection and monitoring instruments; and

4. Equipment and devices used in connection with the utilization or storage of radioactive material.

§ 7:28-4.16 Modification, revocation, suspension, and termination of general and specific [State] licenses

(a) Each general [State] license shall be subject to modification, suspension or revocation by reason of amendments to the Act, adoption of rules by the [Commission or the] Department, orders issued by the Department pursuant to authority of the Act, or for violation or failure to observe any of the terms and provisions of the Act, [State] license or any rule of the [Commission or the] Department, or order of the Department.

(b) Each specific [State] license shall be subject to modification, suspension or revocation by reason of:

1. Amendments to the Act;

2. Adoption of rules by the Commission;

3. Orders issued by the Department pursuant to the authority of the Act;

4. Conditions revealed by the application for a specific [State] license or statement of fact or any report, records or inspection or other means which would warrant the Department to refuse to grant a specific [State] license on an original application;

5. Violation of or failure to observe any of the terms and provisions of the Act or the [State] license, or any rule of the [Commission or] Department or order of the Department;

6. Falsification or misleading statements in any [State] license application;

7. Alteration of [State] licensing document;

8. Falsification of required records; or

9. Failure to make timely payment of [State] licensing fees.

(c) If a specific [State] license is not to be renewed or if a [State] licensee requests a termination of its [State] license, the [State] licensee shall furnish to the Department, prior to the expiration date of the [State] license, close-out surveys, wipe tests and/or soil samples demonstrating that the facility meets the requirements of N.J.A.C. 7:28-12. The facility shall also provide a disposition certificate attesting to the disposal of radioactive material.

§ 7:28-4.17 Requests for an adjudicatory hearing

(a) When the Department denies an initial application for or renewal of a specific [State] license, or determines to modify, revoke, suspend or terminate a general or specific [State] license, the Department shall send a notice of decision to the applicant or licensee by certified mail return receipt requested. The notice shall advise the applicant or licensee of the right to request a contested case hearing pursuant to the Administrative Procedure Act, *N.J.S.A. 52:14B-1* et seq. and the New Jersey Uniform Administrative Procedure Rules, N.J.A.C. 1:1-1 et seq. The notice shall include the following information:

1. Where and whom hearing requests should be sent;

2. The deadline by which hearing requests must be submitted;

3. The information that is required to be in the hearing request under (c) below; and

4. The requirements for requesting a stay under *N.J.A.C. 7:28-4.18*.

(b) All requests for a contested case hearing must be received by the Department within 30 calendar days of the date upon which the notice of decision was received.

(c) All requests for a contested case hearing shall be submitted in writing to the Department, at Office of Legal Affairs, ATTENTION: Adjudicatory Hearing Requests, Department of Environmental Protection, CN 402, Trenton, New Jersey 08625-0402. The request shall contain:

1. The name, address and telephone number of the person making such request;

2. A statement of the legal authority and jurisdiction under which the request for a hearing is made;

3. A brief and clear statement of specific facts describing the Department decision appealed from as well as the nature and scope of the interest of the requestor in such decision; and

4. A statement of all facts alleged to be at issue and their relevance to the Department decision for which a hearing is requested. Any legal issues, associated with the alleged facts at issue, must also be included.

(d) The Department shall determine whether any request for a contested case hearing should be granted. In making such determination, the Department shall evaluate the request to determine whether a contested case, as defined by the Administrative Procedure Act, *N.J.S.A. 52:14B-1* et seq., exists and whether there are issues of fact which, if assumed to be true, might change the Department's decision. Where only issues of law are raised by a request for a hearing, the request will be denied. Denial by the Department of a request for a contested case hearing shall constitute the final decision of the Department for the purposes of judicial appeal.

§ 7:28-4.18 Requirements governing requests for stay of the effective date of the Department decision for which an adjudicatory hearing is requested

(a) The Department may grant a stay of the effective date of a decision to deny, modify, revoke or suspend any State license. The applicant for such a stay must submit evidence that one of the following circumstances exist:

1. The granting of such stay is required as a constitutional or statutory right; or

2. The potential impact on public health, safety, welfare or the environment which might result from a decision to grant a stay is greatly outweighed by immediate, irreparable injury to the specific party requesting such stay.

(b) The decision to grant a contested case hearing request shall not automatically result in a stay of the Department action appealed from absent an express decision to stay such action by the Director. The burden shall be upon the party requesting a hearing to explicitly request a stay of action within the same document as well as to disclose reasons why such stay should be granted.

(c) Department decisions are effective, according to their terms, unless stayed by the Department in writing, upon receipt of written request pursuant to this section.

(d) Written requests for a stay of the effective date of the Department's decision must be made to the Department within 30 calendar days of the date upon which the notice of decision was received.

(e) Any stay that is granted by the Department shall be temporary and in no case shall it extend beyond the date of the Department's final decision of the contested case.

(f) Determinations made pursuant to this section shall be made in a writing mailed to the specific party making such request.

[§ 7:28-4.19 Specific State license fee schedule for the manufacture, production, transfer, distribution or arrangement for distribution, sale, lease, receipt, acquisition, ownership, possession or use of naturally occurring or accelerator produced radioactive material

(a) The specific State license fee schedule is as follows:

Category			Annual License Fee
1.	Radioactive materials license for Human Use Group I:		
	i.	Possession of material only;	$ 350.00
	ii.	Administration of less than 10 doses per year;	$ 500.00
	iii.	Administration of 10 through 49 doses per year;	$ 650.00
	iv.	Administration of 50 or more doses per year.	$ 850.00
2.	Radioactive materials license for Human Use Group II:		
	i.	Possession of material only;	$ 350.00
	ii.	Administration of less than 200 doses per year;	$ 650.00
	iii.	Administration of between 200 and 1,499 doses per year:	$ 1,300.00
	iv.	Administration of 1,500 or more doses per year.	$ 2,000.00

3.	Radioactive materials license for Human Use Group III:		
	i.	Possession of material only;	$ 350.00
	ii.	Administration of less than 200 doses per year;	$ 350.00
	iii.	Administration of 200 through 999 doses per year;	$ 650.00
	iv.	Administration of 1,000 or more doses per year.	$ 850.00
4.	Radioactive materials license for Human Use Group IV:		
	i.	Possession of material only;	$ 350.00
	ii.	Administration of less than 10 doses per year;	$ 500.00
	iii.	Administration of 10 through 49 doses per year;	$ 650.00
	iv.	Administration of 50 or more doses per year.	$ 850.00
5.	Radioactive materials license for Human Use Group V:		
	i.	Possession of material only;	$ 350.00
	ii.	Administration of less than 10 doses per year;	$ 500.00
	iii.	Administration of 10 through 49 doses per year;	$ 650.00

	iv. Administration of 50 or more doses per year.	$ 850.00
6.	Radioactive materials license for Human Use Group VI:	
	i. Possession of material only;	$ 850.00
	ii. Administration of less than 10 doses per year;	$ 1,000.00
	iii. Administration of 10 through 49 doses per year;	$ 1,150.00
	iv. Administration of 50 or more doses per year.	$ 1,300.00
7.	Radioactive material license for commercial manufacture, processing and/or distribution of radioactive materials for Human Use.	$ 4,950.00
8.	Radioactive materials license for commercial manufacture, processing and/or distribution of radioactive materials.	$ 4,950.00
9.	Radioactive materials license for radioactive materials as sealed sources used for calibration and quality control purposes with a possession limit of 10 mCi or less.	$ 1,000.00
10.	Radioactive materials license for radioactive materials, as sealed sources used for calibration and quality control purposes with a possession limit greater than 10 mCi.	$ 1,650.00
11.	Radioactive materials license for radioactive	$ 850.00

	materials as sealed sources contained in devices used for analytical purposes with a possession limit of one mCi or less.	
12.	Radioactive materials license for radioactive materials, except radium-226, as sealed sources, contained in devices used for analytical purposes with a possession limit greater than one mCi but less than or equal to 300 mCi:	
	i. A government body, department, agency, authority, or any other unit of any state, Federal, county or local government using X-ray fluorescence devices for lead paint analysis	$ 200.00
	ii. All others	$ 1,250.00
13.	Radioactive materials license for radioactive materials, except radium-226, as sealed sources, contained in devices used for analytical purposes with a possession limit of greater than 300 mCi.	$ 1,650.00
14.	Radioactive materials license for radioactive radium-226, as sealed sources, contained in devices used for analytical purposes with possession limit greater than one mCi but less than or equal to 50 mCi.	$ 1,650.00
15.	Radioactive materials license for radioactive	$ 2,500.00

	radium-226, as sealed sources, contained in devices used for analytical purposes with a possession limit greater than 50 mCi.	
16.	Radioactive materials license for radioactive materials as sealed sources for Non-Medical Industrial Radiography.	$ 3,300.00
17.	Radioactive materials license for radioactive materials not as sealed sources with a possession limit of 500 mCi or less.	$ 2,500.00
18.	Radioactive materials license for radioactive materials not as sealed sources with a possession limit of greater than 500 mCi.	$ 3,300.00

(b) All State licensees shall pay the fees set forth in (a) above by check payable to "Treasurer, State of New Jersey" prior to August 1 of each year.

1. In the event that the fees are paid after August 1, a delinquency fee equal to one-half of the annual State license fee will be imposed. Failure to pay an annual State license fee including any accrued delinquency fees for longer than 90 days after August 1 shall constitute grounds for suspension or revocation of the State license pursuant to *N.J.A.C. 7:28-4.16.*

2. The annual State license fee shall be mailed to:

State of New Jersey

Department of Environmental Protection

Bureau of Revenue

428 East State Street

PO Box 420

Trenton, New Jersey 08625-0420

(c) Facilities for which multiple State license categories apply shall be charged the sum of the fees for each of the applicable categories.

(d) The term "doses per year" when used in (a) above means the number of doses of radioactive materials within a category that are administered during the period July 1 to June 30.

(e) The term "human use group" when used in (a) above includes the use of radioactive material for calibration and quality control procedures as well as the administration of radioactive materials to humans.

(f) Fees submitted to the Department are non-refundable.]

§ 7:28-4.[20]19 Confidentiality claims

(a) Any applicant required to submit any information pursuant to the Act or this chapter which in the applicant's opinion constitutes trade secrets, proprietary information or information related to national security, may assert a confidentiality claim by following the procedures set forth in this subchapter.

(b) Any applicant submitting any information to the Department and asserting a confidentiality claim covering any information contained therein shall submit two documents to the Department. One shall contain all the information required by the Act or this chapter including any information which the applicant alleges to be entitled to confidential treatment. The second shall be identical to the first except that it shall contain no information which the applicant alleges to be entitled to confidential treatment. The second can be a photocopy of the first, with the allegedly confidential material blacked out.

(c) The top of each page of the first submission containing the information which the applicant alleges to be entitled to confidential treatment shall display the heading "CONFIDENTIAL" in bold type, or stamp.

(d) All parts of the text of the first submission which the applicant alleges to be entitled to confidential treatment shall be underscored or highlighted in a clearly identifiable manner. This manner of marking confidential information shall be such that both the allegedly confidential information and the underscoring or highlighting is reproducible on photocopying machines.

(e) The first submission, containing the information which the applicant alleges to be entitled to confidential treatment, shall be sealed in an envelope which shall display the word "CONFIDENTIAL" in bold type or stamp on both sides. This envelope, together with the second, non-confidential submission (which may or may not be enclosed in a separate envelope, at the option of the applicant), shall be enclosed in another envelope for transmittal to the Department. The outer envelope shall bear no marking indicating the confidential nature of the contents.

(f) To ensure proper delivery, the complete package should be sent by certified mail, return receipt requested, or by other means which will allow verification of receipt. Ordinary mail may be used, but the Department will assume no responsibility for packages until they are actually received.

§ 7:28-4.2[1]0 Access to information; non-disclosure

(a) Until such time as a final confidentiality determination has been made, access to any information for which a confidentiality claim has been made will be limited to Department employees whose activities necessitate such access and as provided at *N.J.A.C. 7:28-4.2[4]3* and 4.2[6]5.

(b) No disclosure of information for which a confidentiality claim has been asserted shall be made to any other persons except as provided in this subchapter.

(c) Nothing in this section shall be construed as prohibiting the incorporation of confidential information into cumulations of data subject to disclosure as public records, provided that such disclosure is not in a form that would foreseeably allow persons, not otherwise having knowledge of such confidential information, to deduce from it the confidential information or the identity of the owner or operator who supplied it to the Department.

§ 7:28-4.2[2]1 Confidentiality determinations

(a) Information for which a confidentiality claim has been asserted will be treated by the Department as entitled to confidential treatment, unless the Department determines that the information is not entitled to confidential treatment as provided in this section and *N.J.A.C. 7:28-4.2[3]2*.

(b) The Department shall act upon a confidentiality claim and determine whether information is or is not entitled to confidential treatment whenever the Department:

1. Receives a request under *N.J.S.A. 47:1A-1* et seq. to inspect or copy such information; or

2. Desires to determine whether information in its possession is entitled to confidential treatment; or

3. Desires for any reason in the public interest to disclose the information to persons not authorized by this subchapter to have access to confidential information.

(c) The Department shall make the initial determination whether information is or is not entitled to confidential treatment.

1. If the Department determines that information is not entitled to confidential treatment, it shall so notify the applicant who submitted the information.

2. The notice required under this subsection shall be sent by certified mail, return receipt requested and shall state the reasons for the Department's initial determination.

3. An applicant who wishes to contest a determination by the Department shall, within 30 days of notification of the determination, submit evidence to support the applicant's contention that the Department's initial determination was incorrect. The evidence may include, but need not be limited to, a statement indicating:

i. The period of time for which confidential treatment is desired by the applicant (for example, until a certain date, until the occurrence of a specified event, or permanently);

ii. The measures taken by the applicant to guard against undesired disclosure of the information to others;

iii. The extent to which the information has been disclosed to others, and the precautions taken in connection therewith; and

iv. The extent of which disclosure of the information would result in substantial damage to the applicant, including a description of the damage, an explanation of why the damage would be substantial, and an explanation of the causal relationship between disclosure and the damage.

4. Failure of an applicant to furnish timely comments or exceptions waives the applicant's confidentiality claim.

5. The applicant may assert a confidentiality claim to any information submitted to the Department by an applicant as part of its comments pursuant to (c)4 above.

6. The Department may extend the time limit for submitting comments pursuant to (c)4 above for good cause shown by the applicant and upon receipt of a request in writing.

(d) After receiving the evidence, the Department shall review its initial determination and make a final determination.

1. If, after review, the Department determines that the information is not entitled to confidential treatment, the Department shall so notify the applicant by certified mail, return receipt requested. The notice shall state the basis for the determination, that it constitutes final agency action concerning the confidentiality claim, and that the Department shall make the information available to the public on the 14th day following receipt by the applicant of the written notice.

2. If, after review, the determination is made that information is entitled to confidential treatment, the information shall not be disclosed, except as otherwise provided by this subchapter. The applicant shall be notified of the Department's determination by certified mail, return receipt requested. The notice shall state the basis for the determination and that it constitutes final agency action.

§ 7:28-4.2[3]2 Substantive criteria for use in confidentiality determinations

(a) When the applicant satisfies each of the following substantive criteria, the Department shall determine that the information for which a confidentiality claim has been asserted is confidential:

1. The applicant has asserted a confidentiality claim which has not expired by its terms, been waived or withdrawn;

2. The applicant has shown that reasonable measures have been taken to protect the confidentiality of the information and that the applicant intends to continue to take such measures;

3. The information is not, and has not been, available or otherwise disclosed to other persons without the applicant's consent (other than by subpoena or by discovery based on a showing of special

need in a judicial or quasi-judicial proceeding, as long as the information has not become available to persons not involved in the proceeding);

4. No statute specifically requires disclosure of the information; and

5. The applicant has shown that disclosure of the information would be likely to cause substantial damage to its competitive position.

§ 7:28-4.2[4]3 Disclosure of confidential information to other public agencies

(a) The Department may disclose confidential information to persons other than Department employees only as provided in this section or *N.J.A.C. 7:28-4.2[5]4*.

(b) The Department may disclose confidential information to any other State agency or to a Federal agency if:

1. The Department receives a written request for disclosure of the information from a duly authorized officer or employee of the other agency;

2. The request sets forth the official purpose for which the information is needed;

3. The Department notifies the other agency of the Department's determination that the information is entitled to confidential treatment, or of any unresolved confidentiality claim covering the information;

4. The other State or Federal agency has first furnished to the Department a written formal legal opinion from the agency's chief legal officer or counsel stating that under applicable law the agency has the authority to compel the person who submitted the information to the Department to disclose such information to the other agency; and

5. The other agency agrees not to disclose the information further unless:

i. The other agency has statutory authority both to compel production of the information and to make the proposed disclosure; or

ii. The other agency has obtained the consent of the affected owner or operator to the proposed disclosure; and

6. The other agency has adopted regulations or operates under statutory authority that will allow it to preserve confidential information from unauthorized disclosure.

(c) Except as otherwise provided at *N.J.A.C. 7:28-4.2[5]4*, the Department shall notify in writing the applicant who supplied the confidential information of:

1. Its disclosure to another agency;

2. The date on which disclosure was made;

3. The name of the agency to which disclosed; and

4. A description of the information disclosed.

§ 7:28-4.2[5]4 Disclosure by consent

(a) The Department may disclose any confidential information to any person if it has obtained the written consent of the applicant to such disclosure.

(b) The giving of consent by an applicant to disclose shall not be deemed to waive a confidentiality claim with regard to further disclosures unless the authorized disclosure is of such a nature as to make the disclosed information accessible to the general public.

§ 7:28-4.2[6]5 Disclosure based on imminent and substantial danger

(a) Upon a finding that disclosure of confidential information would serve to alleviate an imminent and substantial danger to public health and the environment, the Department may:

1. Prescribe and make known to the applicant such shorter comment period (*N.J.A.C. 7:28-4.2[2]1(c)*4), post-determination waiting period (*N.J.A.C. 7:28-4.2[2]1(d)*1), or both, as it finds necessary under the circumstances; or

2. Disclose confidential information to any person whose role in alleviating the danger to public health and the environment necessitates that disclosure. Any such disclosure shall be limited to information necessary to enable the person to whom it is disclosed to carry out the activities in alleviating the danger.

(b) Any disclosure made pursuant to this section shall not be deemed a waiver of a confidentiality claim, nor shall it of itself be grounds for any determination that information is no longer entitled to confidential treatment.

§ 7:28-4.2[7]6 Security procedures

(a) Submissions to the Department pursuant to the Act and this chapter will be opened only by persons authorized by the Department engaged in administering the Act and this chapter.

(b) Only those Department employees whose activities necessitate access to information for which a confidentiality claim has been made, shall open any envelope which is marked "CONFIDENTIAL".

(c) All submissions entitled to confidential treatment as determined at *N.J.A.C. 7:28-4.2[2]1* shall be stored by the Department only in locked cabinets.

(d) Any record made or maintained by Department employees which contains confidential information shall contain appropriate indicators identifying the confidential information.

§ 7:28-4.2[8]7 Wrongful access or disclosure; penalties

(a) A person shall not disclose, seek access to, obtain or have possession of any confidential information obtained pursuant to the Act or this chapter, except as authorized by this subchapter.

(b) Every Department employee who has custody or possession of confidential information shall take appropriate measures to safeguard such information and to protect against its improper disclosure.

(c) A Department employee shall not disclose, or use for his or her private gain or advantage, any information which came into his or her possession, or to which he or she gained access, by virtue of his or her official position of employment or contractual relationship with the Department.

(d) If the Department finds that any person has violated provisions of this subchapter, it may:

1. Commence a civil action in Superior Court for a restraining order and an injunction barring that person from further disclosing confidential information.

2. Pursue any other remedy available by law.

(e) In addition to any other penalty that may be sought by the Department, violation of this subchapter by a Department employee shall constitute grounds for dismissal, suspension, fine or other adverse personnel action.

(f) Use of any of the remedies specified under this section shall not preclude the use of any other remedy.

SUBCHAPTER 5. CONTROLLED AREAS

§ 7:28-5.1 Areas which must be controlled

(a) Except as provided in (b) below, every area in which there is any reasonable possibility of an occupant receiving an exposure dose from radiation and radioactive material more than the dose specified in N.J.A.C. 7:28-6 (Dose Limits) for radiation levels outside a controlled area shall be set apart as a controlled area by any person having possession, custody or control of any ionizing radiation-producing machine and/or radioactive material.

(b) All outgoing or incoming shipments of radioactive material shall be transported in conformance with all pertinent U.S. Department of Transportation regulations.

§ 7:28-5.2 Limitations on controlled areas

No area within controlled areas shall be used for residential quarters although a room or rooms in residential buildings may be set apart as a controlled area.

§ 7:28-5.3. Precautionary procedures

(a) Any person having possession, custody or control of any ionizing radiation-producing machine and/or radioactive material shall comply with the following precautionary procedures:

1. Area surveys shall be performed in controlled areas and in adjacent areas to insure that exposure levels to individuals conform to N.J.A.C. 7:28-6. The surveys shall be performed in accordance with N.J.A.C. 7:28-7, Radiation Surveys and Personnel Monitoring.

2. Wipe tests shall be performed in areas where unsealed sources are routinely used to insure compliance with the requirements for radioactive contamination control in N.J.A.C. 7:28-9 (Radioactive Contamination Control). The wipe tests shall be performed in accordance with N.J.A.C. 7:28-7.

3. Personnel surveys shall be performed and documented to insure compliance with N.J.A.C. 7:28-9.

4. All individuals entering a controlled area shall wear personnel monitoring equipment pursuant to the requirements for the use of personnel monitoring equipment in N.J.A.C. 7:28-7.

5. Proper and adequate instruction shall be given to all personnel working in controlled areas in the use of necessary safeguards and procedures, and they shall be supplied with such safety devices as may be required.

6. Adequate instructions or an escort shall be provided to all personnel frequenting or visiting controlled areas as shall be necessary to prevent unnecessary exposure.

7. The area shall be posted in accordance with N.J.A.C. 7:28-10 (Labeling, Posting, and Controls).

§ 7:28-5.4 Termination of controlled areas

Before an area where radioactive materials had been stored, utilized or generated can be reclassified as an uncontrolled area, surveys shall be performed and documented to ensure compliance with N.J.A.C. 7:28-6 for radiation levels outside of controlled areas. Wipe tests shall be performed and documented in areas where unsealed sources had been used or generated.

SUBCHAPTER 6. DOSE LIMITS

§ 7:28-6.1. [Exposure of individuals in controlled areas] Occupational dose limits for adults.

[(a) Except as provided in (b) below, no individual in a controlled area shall receive in any period of one calendar quarter a dose in excess of the following specified limits:

1. Whole body; head and trunk; active blood-forming organs; lens of eyes; or gonads - 1 1/4 Rems;

2. Hands and forearms; feet and ankles - 18 3/4 Rems;

3. Skin of whole body - 7 1/2 Rems.

4. Doses received by human patients from intentional exposure to radiation for the purpose of diagnosis or therapy shall be excluded from the computations set forth in (a)1, 2 and 3 above.

(b) An individual in a controlled area may receive a dose to the whole body greater than that permitted under subsection (a) of this Section, provided:

1. During any calendar quarter the dose to the whole body shall not exceed three Rems;

2. The dose to the whole body, when added to the accumulated occupational dose to the whole body, shall not exceed five (N-18) Rems where "N" equals the individual's age in years at his last birthday; and

3. The owner has determined the individual's accumulated occupational dose to the whole body on Form BRP-27, or on a clear and legible record containing all the information required in that form: and has otherwise complied with the requirements of subsection (c) of this Section. As used in this subsection "dose to the whole body" includes any dose to the whole body, gonads, active blood-forming organs, head and trunk, or lens of eye; and

4. Doses received by human patients from intentional exposure to radiation for the purpose of diagnosis or therapy shall be excluded, in the computations set forth in paragraphs 1 and 2 of this subsection.

(c) The following requirements must be satisfied by owners who propose, pursuant to subsection (b) of this Section to permit individuals in a controlled area to receive exposure to radiation in excess of the limits specified in subsection (a) of this Section:

1. Before permitting any individual in a controlled area to receive exposure to radiation in excess of the limits specified in subsection (a) of this Section each owner shall:

i. Obtain a certificate on Form BRP-27, or on a clear and legible record containing all the information required in that form, signed by the individual showing each period of time after the individual attained the age of 18 in which the individual received, or may have received, an occupational dose of radiation; and

ii. Calculate on Form BRP-27, in accordance with the instructions, or on a clear and legible record containing all the information required in that form, the previously accumulated occupational dose received by the individual and the additional dose allowed for that individual under subsection (b) of this Section.

2. In the preparation of Form BRP-27, or on a clear and legible record containing all information required in that form, the owner shall make a reasonable effort to obtain reports of the individual's previously accumulated occupational dose. In any case where an owner is unable to obtain reports of the individual's occupational dose for a previous complete calendar quarter, it shall be assumed that the individual has received the occupational dose specified in whichever of the following columns apply:

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3. If calculation of the individual's accumulated occupational dose for all periods prior to January 1, 1961, yields a result higher than the applicable accumulated dose value for the individual as of that date, as specified in subsection (b) of this Section, the excess may be disregarded. The owner shall retain and preserve records used in preparing Form BRP-27, or its equivalent, as specified in subsection (b)3 of this Section.

(d) For individuals within a controlled area, the radiation dose to tissues of the body from radioactive materials within the body shall be controlled by limiting the average rates at which such materials are taken into the body. Where the intake results from the occurrence of radioactive materials in the air, the concentration of the radioisotopes in the air, averaged over any seven consecutive days, shall not be permitted to exceed the concentrations listed in Section 6.5(a) (Average concentrations) of this Chapter, Column B, or prorated values if more than one isotope is present. The limits given in Section 6.5(a) of this Chapter, Column B, are based upon exposure to the concentrations specified for 40 hours in any period of seven consecutive days. In any such period where the number of hours of exposure is less than 40, the limits specified in the table may be increased proportionately. In any such period, where the number of hours of exposure is greater than 40, the limits specified in the table shall be decreased proportionately.

(e) Except as authorized by the Department in writing, no allowance shall be made in subsection (d) of this Section or the use of protective clothing or equipment, or particle size.

1. The Department may authorize an owner to expose an individual in a controlled area to airborne concentrations in excess of the limits specified in Section 6.5(a) of this Chapter, Column B, upon receipt of an application demonstrating that the concentration is composed in whole or in part of particles of such size that such particles are not respirable and that the individual will not inhale concentrations in excess of the limits established in Section 6.5(a) of this Chapter, Column B. Each application under this

paragraph shall include an analysis of particle size in the concentrations and a description of the methods used in determining the particle size.

2. The Department may authorize an owner to expose an individual in a controlled area to airborne concentrations in excess of the limits specified in Section 6.5(a) of this Chapter, Column B, upon receipt of an application demonstrating that the individual will wear appropriate protective equipment and that the individual will not inhale, ingest, or absorb quantities of radioactive material in excess of those which might otherwise be permitted under this Chapter for individuals in controlled areas during a 40-hour week. Each application under this paragraph shall contain the following information:

i. A description of the protective equipment to be employed, including the efficiency of the equipment for the material involved;

ii. Procedures for the fitting, maintenance, and cleaning of the protective equipment;

iii. Procedures governing the use of the protective equipment, including supervisory procedures and length of time the equipment will be used by the individuals in each workweek. The proposed periods for use of the equipment by an individual shall not be of such duration as would discourage observance by the individual of the proposed procedures; and

iv. The average concentrations present in the areas occupied by the individuals.

(f) The dose received by any individual under 18 years of age shall not exceed 10 percent of the limits established in (a) above nor shall such an individual be exposed to concentrations of radioactive material greater than those listed in N.J.A.C. 7:28-11 Appendix, Table 1, Column 1.]

(a) The licensee or registrant shall control the occupational dose to individual adults, except for planned special exposures under § N.J.A.C. 7:28-6.5, to the following dose limits.

(1) An annual limit, which is the more limiting of--

(i) The total effective dose equivalent being equal to 5 rems (0.05 Sv); or

(ii) The sum of the deep-dose equivalent and the committed dose equivalent to any individual organ or tissue other than the lens of the eye being equal to 50 rems (0.5 Sv).

(2) The annual limits to the lens of the eye, to the skin of the whole body, and to the skin of the extremities, which are:

(i) A lens dose equivalent of 15 rems (0.15 Sv), and

(ii) A shallow-dose equivalent of 50 rem (0.5 Sv) to the skin of the whole body or to the skin of any extremity.

(b) Doses received in excess of the annual limits, including doses received during accidents, emergencies, and planned special exposures, must be subtracted from the limits for planned special exposures that the individual may receive during the current year (see § N.J.A.C. 7:28-6.5(e)(1)) and during the individual's lifetime (see § N.J.A.C. 7:28-6.5(e)(2)).

(c) The assigned deep-dose equivalent must be for the part of the body receiving the highest exposure. The assigned shallow-dose equivalent must be the dose averaged over the contiguous 10 square centimeters of skin receiving the highest exposure. The deep-dose equivalent, lens-dose equivalent, and shallow-dose equivalent may be assessed from surveys or other radiation measurements for the purpose of demonstrating compliance with the occupational dose limits, if the individual monitoring device was not in the region of highest potential exposure, or the results of individual monitoring are unavailable.

(d) Derived air concentration (DAC) and annual limit on intake (ALI) values are presented in table 1 of appendix B to 10 CFR 20, incorporated herein by reference and may be used to determine the individual's dose (see § N.J.A.C. 7:28-6.5) and to demonstrate compliance with the occupational dose limits.

(e) In addition to the annual dose limits, the licensee shall limit the soluble uranium intake by an

individual to 10 milligrams in a week in consideration of chemical toxicity (see footnote 3 of table 1 of appendix B to 10 CFR 20, incorporated herein by reference).

(f) The licensee or registrant shall reduce the dose that an individual may be allowed to receive in the current year by the amount of occupational dose received while employed by any other person (see § N.J.A.C. 7:28-6.4(e)).

§ 7:28-6.2 Compliance with requirements for summation of external and internal doses.

(a) If the licensee or registrant is required to monitor under both §§ N.J.A.C. 7:28-7.3(a) and (b), the licensee shall demonstrate compliance with the dose limits by summing external and internal doses. If the licensee or registrant is required to monitor only under § N.J.A.C. 7:28-7.3(a) or only under § N.J.A.C. 7:28-7.3(b), then summation is not required to demonstrate compliance with the dose limits. The licensee or registrant may demonstrate compliance with the requirements for summation of external and internal doses by meeting one of the conditions specified in paragraph (b) of this section and the conditions in paragraphs (c) and (d) of this section.

(Note: The dose equivalents for the lens of the eye, the skin, and the extremities are not included in the summation, but are subject to separate limits.)

(b) *Intake by inhalation.* If the only intake of radionuclides is by inhalation, the total effective dose equivalent limit is not exceeded if the sum of the deep-dose equivalent divided by the total effective dose equivalent limit, and one of the following, does not exceed unity:

(1) The sum of the fractions of the inhalation ALI for each radionuclide, or

(2) The total number of derived air concentration-hours (DAC-hours) for all radionuclides divided by 2,000, or

(3) The sum of the calculated committed effective dose equivalents to all significantly irradiated[1] organs or tissues (T) calculated from bioassay data using appropriate biological models and expressed as a fraction of the annual limit.

(c) *Intake by oral ingestion.* If the occupationally exposed individual also receives an intake of radionuclides by oral ingestion greater than 10 percent of the applicable oral ALI, the licensee shall account for this intake and include it in demonstrating compliance with the limits.

(d) *Intake through wounds or absorption through skin.* The licensee shall evaluate and, to the extent practical, account for intakes through wounds or skin absorption.

Note: The intake through intact skin has been included in the calculation of DAC for hydrogen-3 and does not need to be further evaluated.

[1] An organ or tissue is deemed to be significantly irradiated if, for that organ or tissue, the product of the weighting factor, w_T, and the committed dose equivalent, $H_{T,50}$, per unit intake is greater than 10 percent of the maximum weighted value of $H_{T,50}$, (i.e., $w_T H_{T,50}$) per unit intake for any organ or tissue.

§ 7:28-6.3 Determination of external dose from airborne radioactive material.

Licensees shall, when determining the dose from airborne radioactive material, include the contribution to the deep-dose equivalent, lens dose equivalent, and shallow-dose equivalent from external exposure to the radioactive cloud (see appendix B to 10 CFR 20 incorporated herein by reference, footnotes 1 and 2).

Note: Airborne radioactivity measurements and DAC values should not be used as the primary means to assess the deep-dose equivalent when the airborne radioactive material includes radionuclides other than

noble gases or if the cloud of airborne radioactive material is not relatively uniform. The determination of the deep-dose equivalent to an individual should be based upon measurements using instruments or individual monitoring devices.

§ 7:28-6.4 Determination of internal exposure.

(a) For purposes of assessing dose used to determine compliance with occupational dose equivalent limits, the licensee shall, when required under § N.J.A.C. 7:28-7.3, take suitable and timely measurements of--

(1) Concentrations of radioactive materials in air in work areas; or

(2) Quantities of radionuclides in the body; or

(3) Quantities of radionuclides excreted from the body; or

(4) Combinations of these measurements.

(b) Unless respiratory protective equipment is used, as provided in § N.J.A.C. 7:28-7.7, or the assessment of intake is based on bioassays, the licensee shall assume that an individual inhales radioactive material at the airborne concentration in which the individual is present.

(c) When specific information on the physical and biochemical properties of the radionuclides taken into the body or the behavior or the material in an individual is known, the licensee may--

(1) Use that information to calculate the committed effective dose equivalent, and, if used, the licensee shall document that information in the individual's record; and

(2) Upon prior approval of the Commission, adjust the DAC or ALI values to reflect the actual physical

and chemical characteristics of airborne radioactive material (e.g., aerosol size distribution or density); and

(3) Separately assess the contribution of fractional intakes of Class D, W, or Y compounds of a given radionuclide (see appendix to this subchapter) to the committed effective dose equivalent.

(d) If the licensee chooses to assess intakes of Class Y material using the measurements given in § N.J.A.C. 7:28-6.4(a)(2) or (3), the licensee may delay the recording and reporting of the assessments for periods up to 7 months, unless otherwise required by N.J.A.C. 7:28-13.2 or 13.3, in order to permit the licensee to make additional measurements basic to the assessments.

(e) If the identity and concentration of each radionuclide in a mixture are known, the fraction of the DAC applicable to the mixture for use in calculating DAC-hours must be either--

(1) The sum of the ratios of the concentration to the appropriate DAC value (e.g., D, W, Y) from the appendix to this subchapter for each radionuclide in the mixture; or

(2) The ratio of the total concentration for all radionuclides in the mixture to the most restrictive DAC value for any radionuclide in the mixture.

(f) If the identity of each radionuclide in a mixture is known, but the concentration of one or more of the radionuclides in the mixture is not known, the DAC for the mixture must be the most restrictive DAC of any radionuclide in the mixture.

(g) When a mixture of radionuclides in air exists, licensees may disregard certain radionuclides in the mixture if--

(1) The licensee uses the total activity of the mixture in demonstrating compliance with the dose limits in § N.J.A.C. 7:28-6.1 and in complying with the monitoring requirements in § N.J.A.C. 7:28-7.3(b),

and

(2) The concentration of any radionuclide disregarded is less than 10 percent of its DAC, and

(3) The sum of these percentages for all of the radionuclides disregarded in the mixture does not exceed 30 percent.

(h)(1) In order to calculate the committed effective dose equivalent, the licensee may assume that the inhalation of one ALI, or an exposure of 2,000 DAC-hours, results in a committed effective dose equivalent of 5 rems (0.05 Sv) for radionuclides that have their ALIs or DACs based on the committed effective dose equivalent.

(2) When the ALI (and the associated DAC) is determined by the nonstochastic organ dose limit of 50 rems (0.5 Sv), the intake of radionuclides that would result in a committed effective dose equivalent of 5 rems (0.05 Sv) (the stochastic ALI) is listed in parentheses in table 1 of appendix B to 10 CFR 20, incorporated herein by reference. In this case, the licensee may, as a simplifying assumption, use the stochastic ALIs to determine committed effective dose equivalent. However, if the licensee uses the stochastic ALIs, the licensee must also demonstrate that the limit in § N.J.A.C. 7:28-6.1(a)(1)(ii) is met.

§ 7:28-6.5 Planned special exposures.

A licensee or registrant may authorize an adult worker to receive doses in addition to and accounted for separately from the doses received under the limits specified in § N.J.A.C. 7:28-6.1 provided that each of the following conditions is satisfied--

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

unavailable or impractical.

(b) The licensee or registrant (and employer if the employer is not the licensee) specifically authorizes the planned special exposure, in writing, before the exposure occurs.

(c) Before a planned special exposure, the licensee ensures that the individuals involved are--

(1) Informed of the purpose of the planned operation;

(2) Informed of the estimated doses and associated potential risks and specific radiation levels or other conditions that might be involved in performing the task; and

(3) Instructed in the measures to be taken to keep the dose ALARA considering other risks that may be present.

(d) Prior to permitting an individual to participate in a planned special exposure, the licensee or registrant ascertains prior doses as required by § N.J.A.C. 7:28-6.4(b) during the lifetime of the individual for each individual involved.

(e) Subject to § N.J.A.C. 7:28-6.1(b), the licensee or registrant does not authorize a planned special exposure that would cause an individual to receive a dose from all planned special exposures and all doses in excess of the limits to exceed--

(1) The numerical values of any of the dose limits in § N.J.A.C. 7:28-6.1(a) in any year; and

(2) Five times the annual dose limits in § N.J.A.C. 7:28-6.1(a) during the individual's lifetime.

(f) The licensee or registrant maintains records of the conduct of a planned special exposure in accordance with § N.J.A.C. 7:28-8.7 and submits a written report in accordance with N.J.A.C. 7:28-13.4.

(g) The licensee or registrant records the best estimate of the dose resulting from the planned special exposure in the individual's record and informs the individual, in writing, of the dose within 30 days from the date of the planned special exposure. The dose from planned special exposures is not to be considered in controlling future occupational dose of the individual under § N.J.A.C. 7:28-6.1(a) but is to be included in evaluations required by § N.J.A.C. 7:28-6.5 (d) and (e).

§ 7:28-6.6 Occupational dose limits for minors.

The annual occupational dose limits for minors are 10 percent of the annual dose limits specified for adult workers in § N.J.A.C. 7:28-6.1.

§ 7:28-6.[6]7 Dose equivalent to an embryo/fetus

(a) The [State] licensee or registrant shall ensure that the dose equivalent to the embryo/fetus during the entire pregnancy, due to the occupational exposure of a declared pregnant woman, does not exceed 0.5 rem (five mSv). Recordkeeping shall meet the requirements set forth at *N.J.A.C. 7:28-8.[1]8*.

(b) The [State] licensee or registrant shall make efforts to avoid substantial variation above a uniform monthly exposure rate to a declared pregnant woman so as to satisfy the limit in (a) above.

(c) The dose equivalent to the embryo/fetus is the sum of:

1. The deep-dose equivalent to the declared pregnant woman; and

2. The dose equivalent to the embryo/fetus resulting from radionuclides in the embryo/fetus and radionuclides in the declared pregnant woman.

(d) If the dose equivalent to the embryo/fetus is found to have exceeded 0.5 rem (five mSv), or is within 0.05 rem (0.5 mSv) of this dose, by the time the woman declares the pregnancy to the [State] licensee or registrant, the [State] licensee or registrant shall be deemed to be in compliance with (a) above if the additional dose equivalent to the embryo/fetus does not exceed 0.05 rem (0.5 mSv) during the remainder of the pregnancy.

§ 7:28-6.[2]8 [Radiation levels outside controlled areas] Dose limits for individual members of the public

(a) Each [State] licensee or registrant shall conduct operations as follows:

1. The total effective dose equivalent to individual members of the public from the State licensed or registered operation does not exceed 0.1 rem (one millisievert (mSv)) in a year, exclusive of the dose contributions from background radiation, from any medical administration the individual has received, from exposure to individuals administered radioactive material and released in accordance with [10 CFR 35.75] N.J.A.C. 7:28-55.1, and from the [State] licensee's disposal of radioactive material into a [sanitary sewer system] domestic treatment works in accordance with N.J.A.C. 7:28-11.2; and

2. The dose in any unrestricted area from external sources, exclusive of the dose contribution from patients administered radioactive materials and released in accordance with [10 CFR 35.75] N.J.A.C. 7:28-55.1, does not exceed 0.002 rem (0.02 millisievert) in any one hour.

(b) If the [State] licensee or registrant permits members of the public to have access to controlled areas, the limits for members of the public as set forth in (a) above continue to apply to those individuals.

(c) Notwithstanding (a)1 above, a [State] licensee may permit visitors to a patient who cannot be released under [10 CFR 35.75] N.J.A.C. 7:28-55.1 to receive a radiation dose greater than 0.1 rem (one mSv) per year if:

1. The radiation dose received does not exceed 0.5 rem (five mSv) annually; and

2. The authorized user, as defined in [10 CFR 35.75] N.J.A.C. 7:28-55.1, has determined before the visit that it is appropriate.

(d) A registrant or [State] licensee may apply [to the] for Department[, which may approve upon recommendation from the Commission, for] authorization to conduct operations in such a manner that the annual dose received by an individual member of the public does not exceed 0.5 rem (five mSv). The registrant or [State] licensee shall include the following information in this application:

1. Demonstration of the need for and expected duration of operations in excess of the limit in (a) above;

2. A description of the registrant's or [State] licensee's program to assess and control dose within the 0.5 rem (five mSv) annual limit; and

3. The procedures to be followed to maintain the dose as low as is reasonably achievable.

(e) Transportation and packaging of radioactive materials must comply with all regulations of the U.S. Department of Transportation and all other agencies of the United States having jurisdiction.

(f) The Department may impose in a [State] license additional restrictions on radiation levels in unrestricted areas and on the total quantity of radionuclides that a [State] licensee may release in effluents (see N.J.A.C. 7:28-11 Appendix, Tables 1 and 2) in order to [prevent exceedence of] restrict the collective dose.

(g) In addition to the requirements of this part, a licensee subject to the provisions of EPA's generally applicable environmental radiation standards in 40 Part CFR 190 shall comply with those standards.

§ N.J.A.C. 7:28-6.9 Compliance with dose limits for individual members of the public.

(a) The registrant or licensee shall make or cause to be made, as appropriate, surveys of radiation levels in unrestricted and controlled areas and radioactive materials in effluents released to unrestricted and controlled areas to demonstrate compliance with the dose limits for individual members of the public in § N.J.A.C. 7:28-6.8.

(b) A licensee or registrant shall show compliance with the annual dose limit in § N.J.A.C. 7:28-6.8 by--

(1) Demonstrating by measurement or calculation that the total effective dose equivalent to the individual likely to receive the highest dose from the licensed operation does not exceed the annual dose limit; or

(2) Demonstrating that--

(i) The annual average concentrations of radioactive material released in gaseous and liquid effluents at the boundary of the unrestricted area do not exceed the values specified in table 1 of the appendix to subchapter 11; and

(ii) If an individual were continuously present in an unrestricted area, the dose from external sources would not exceed 0.002 rem (0.02 mSv) in an hour and 0.05 rem (0.5 mSv) in a year.

(c) Upon approval from the Department, the licensee may adjust the effluent concentration values in the appendix to subchapter 11, table 1, for members of the public, to take into account the actual physical

and chemical characteristics of the effluents (e.g., aerosol size distribution, solubility, density, radioactive decay equilibrium, chemical form).

[§ 7:28-6.3 Concentrations in effluents from controlled areas

Concentrations of radioactive materials in effluents from controlled areas shall meet the requirements of Sections 11.2 (Disposal by release into sanitary sewerage systems) and 11.3 (Disposal by discharges into the air, ground waters or surface waters) of this Chapter.]

§ 7:28-6.[4]10. Exposures in the event of radiation incidents or emergencies

In the event of a radiation incident in which an employee or emergency worker receives more than the limits specified in subsection (a) of *N.J.A.C. 7:28-6.1*, [Exposure of individuals in controlled areas] Occupational dose limits for adults, or in the event of emergency conditions in which immediate action required to minimize danger to life results in an employee or emergency worker receiving doses beyond the limits specified in subsection (a) of *N.J.A.C. 7:28-6.1*, [Exposure of individuals in controlled areas] Occupational dose limits for adults, each employer shall take measures to limit additional exposures of his employees to an extent and for a period, which shall be subject to approval by the Department. All such doses shall be reported as required by N.J.A.C. 7:28-13, Reports of Thefts and Radiation Incidents, and shall be included in the records required by N.J.A.C. 7:28-8, Records.

[§ 7:28-6.5. Average concentrations

(a) Maximum permissible average concentrations of radioactive materials in air and water shall be as follows:

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(b) In any case where there is a mixture in air or water of more than one radionuclide, the limiting values for purposes of this section shall be determined as follows:

1. If the identity and concentration of each radionuclide in the mixture are known, the limiting values shall be derived as follows:

i. Determine, for each radionuclide in the mixture, the ratio between the quantity present in the mixture and the limit otherwise established in this section for the specific radionuclide when not in a mixture.

ii. The sum of such ratios for all the radionuclides in the mixture may not exceed "1" ("unity").

iii. For example, if radionuclides A, B, and C are present in concentrations, C[a], C[b], and C[c], and if the applicable MPC's are MPC[a] and MPC[b] and MPC[c] respectively, then the concentrations shall be limited so that the following relationship exists:

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2. If either the identity or the concentration of any radionuclide in the mixture is not known, the limiting values for purposes of this section are:

i. For purposes of Column A - 3 x 10[-7]

ii. For purposes of Column B - 1 x 10[-12]

3. If any of the conditions specified in this paragraph are met, the corresponding values specified in this paragraph may be used in lieu of those specified in paragraph 2 of this subsection.

i. If the identity of each radionuclide in the mixture is known but the concentration of one or more of the radionuclides in the mixture is not known, the concentration limit for the mixture is the limit specified in subsection (a) of this Section for the radionuclide in the mixture having the lowest concentration limit;

ii. If the identity of each radionuclide in the mixture is not known, but it is known that certain radionuclides specified in subsection (a) of this Section are not present in the mixture, the concentration limit for the mixture is the lowest concentration limit specified in subsection (a) of this Section for any radionuclide which is not known to be absent from the mixture; or

iii.

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4. If the mixture of radionuclides consists of uranium and its daughter products in ore dust prior to chemical processing of the uranium ore, the values specified in this paragraph may be used in lieu of those determined in accordance with (b)1 above, or those specified in (b)2 and 3 above.

i. For purposes of subsection (a) of this Section, Column B, 1 x 10[-10] uc/ml gross alpha activity; or 2.5 x 10[-11] uc/ml natural uranium; or 75 micrograms per cubic meter of air natural uranium.]

6.11 Radiation Protection Programs

(a) Each licensee shall develop, document, and implement a radiation protection program commensurate with the scope and extent of licensed activities and sufficient to ensure compliance with the provisions of this part. (See N.J.A.C. 7:28-8.2 for recordkeeping requirements relating to these programs.)

(b) The licensee shall use, to the extent practical, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to members of the public that are as low as is reasonably achievable (ALARA).

(c) The licensee shall periodically (at least annually) review the radiation protection program content and implementation.

(d) To implement the ALARA requirements of (b), and notwithstanding the requirements in N.J.A.C. 7:28-6.8, of this part, a constraint on air emissions of radioactive material to the environment, excluding Radon-222 and its daughters, shall be established by licensees such that the individual member of the public likely to receive the highest dose will not be expected to receive a total effective dose equivalent in excess of 10 mrem (0.1 mSv) per year from these emissions. If a licensee subject to this requirement exceeds this dose constraint, the licensee shall report the exceedance as provided in N.J.A.C. 7:28-13.3 and promptly take appropriate corrective action to ensure against recurrence.

SUBCHAPTER 7. RADIATION SURVEYS AND PERSONNEL MONITORING

§ N.J.A.C. 7:28-7.1 General.

(a) Each licensee or registrant shall make or cause to be made, surveys that--

(1) May be necessary for the licensee or registrant to comply with the regulations in this part; and

(2) Are reasonable under the circumstances to evaluate--

(i) The magnitude and extent of radiation levels; and

(ii) Concentrations or quantities of radioactive material; and

(iii) The potential radiological hazards.

(b) The licensee or registrant shall ensure that instruments and equipment used for quantitative radiation measurements (e.g., dose rate and effluent monitoring) are calibrated periodically for the radiation measured.

(c) All personnel dosimeters (except for direct and indirect reading pocket ionization chambers and those dosimeters used to measure the dose to the extremities) that require processing to determine the radiation dose and that are used by licensees or registrants to comply with Subchapter 6, with other applicable provisions of this chapter, or with conditions specified in a license must be processed and evaluated by a dosimetry processor--

(1) Holding current personnel dosimetry accreditation from the National Voluntary Laboratory Accreditation Program (NVLAP) of the National Institute of Standards and Technology; and

(2) Approved in this accreditation process for the type of radiation or radiations included in the NVLAP program that most closely approximates the type of radiation or radiations for which the individual wearing the dosimeter is monitored.

§ 7:28-7.[1]2 Surveys inside controlled areas

(a) The [State] licensee or registrant shall ensure that controlled areas shall be surveyed by, or under the direction of, a qualified individual to determine if the installation is maintained and operations are conducted in compliance with this Chapter.

(b) The [State] licensee or registrant shall ensure that radiation levels shall be determined with the use of suitable instruments and methods.

[(c) The State licensee or registrant shall ensure that surveys shall be made of the air for radioactive content when the average concentrations may exceed 1/4 the amount specified in *N.J.A.C. 7:28-6.5(a)*, Column B, or prorated values when more than one isotope is present.]

(d) The [State] licensee shall ensure that installations where unsealed radioactive materials are stored or used shall be periodically surveyed for contamination of surfaces. These surveys shall be conducted in a manner to insure that the levels of surface contamination are below those that could lead to exposures amounting to 10 percent of the limits specified in *N.J.A.C. 7:28-6.1*[*(a)* and (d)].

(e) The [State] licensee or registrant shall ensure that the record of a survey shall contain, but shall not be limited to the radiation levels, the time the radiation is produced, the workweek and the fraction of the workweek that any individual may be exposed to the radiation and when required, the radioactive air concentrations and surface contaminations.

(f) The [State] licensee or registrant shall ensure that subsequent surveys shall be conducted at such times and as frequently as may be necessary to assure that the controlled areas and operations remain in compliance with this Chapter.

§ N.J.A.C. 7:28-7.3 Conditions requiring individual monitoring of external and internal occupational dose.

Each licensee or registrant shall monitor exposures to radiation and radioactive material at levels sufficient to demonstrate compliance with the occupational dose limits of Subchapter 6. As a minimum--

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

(1) Adults likely to receive, in 1 year from sources external to the body, a dose in excess of 10 percent of the limits in § N.J.A.C. 7:28-6.1(a),

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

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

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

(5) At least one visitor in a group of visitors entering a controlled area.

(b) Each licensee shall monitor (see § N.J.A.C. 7:28-6.4) the occupational intake of radioactive material by and assess the committed effective dose equivalent to--

(1) Adults likely to receive, in 1 year, an intake in excess of 10 percent of the applicable ALI(s) in table 1, Columns 1 and 2, of appendix B to 10 CFR 20, incorporated herein by reference;

(2) Minors likely to receive, in 1 year, a committed effective dose equivalent in excess of 0.1 rem (1

mSv); and

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

[2] All of the occupational doses in § N.J.A.C. 7:28-6.1 continue to be applicable to the declared pregnant worker as long as the embryo/fetus dose limit is not exceeded.

§ 7:28-7.[2]4 Surveys outside controlled areas

Surveys shall be made outside controlled areas at sufficient intervals and locations as may be necessary to insure compliance with [Sections 6.2 (Radiation levels outside controlled areas) and 6.3 (Concentrations in effluents from controlled areas)] N.J.A.C. 7:28-6 [of this Chapter](Dose Limits).

[§ 7:28-7.3 Statement in lieu of actual survey

A written statement signed by a qualified individual and including his calculations and analysis of the dose rates in the vicinity of a radiation source may be acceptable in place of the survey required in Section 7.1 (Surveys inside controlled areas) of this Chapter, except when radioactive-air contamination or surface contamination is involved.

§ 7:28-7.4 Use of personnel-monitoring equipment

(a) Each owner shall supply appropriate personnel-monitoring equipment to and shall require that it be used by:

1. Each individual who enters a controlled area under such circumstances that he receives, or is likely to receive, a dose in excess of 25 millirems in any period of seven consecutive days;

2. Each individual under 18 years of age who enters a controlled area under such circumstances that he receives or is likely to receive a dose in excess of ten millirems in any period of seven consecutive days;

3. Each individual who enters a high radiation area; and

4. At least one visitor in a group of visitors entering a controlled area.

(b) All individuals required to wear personnel-monitoring equipment shall be instructed in its proper use and purpose. Records shall be kept in accordance with Section 8.1 (Personnel-monitoring records) of this Chapter.

(c) When an individual working on the premises of an owner, but not employed by him is wearing personnel-monitoring equipment provided by his employer, the owner of the radiation source shall not be required to provide additional personnel-monitoring equipment.

§ 7:28-7.5 Requirements for bio-assays

Where necessary or desirable in order to aid in determining the extent of an individual's exposure to concentrations of radioactive material, the Department may incorporate license provisions or issue an order requiring the owner to have appropriate bio-assays made and to furnish the Department with copies of such bio-assays.]

§ N.J.A.C. 7:28-7.5 Use of process or other engineering controls.

The licensee shall use, to the extent practical, process or other engineering controls (*e.g.*, containment,

decontamination, or ventilation) to control the concentration of radioactive material in air.

§ N.J.A.C. 7:28-7.6 Use of other controls.

(a) When it is not practical to apply process or other engineering controls to control the concentrations of radioactive material in the air to values below those that define an airborne radioactivity area, the licensee shall, consistent with maintaining the total effective dose equivalent ALARA, increase monitoring and limit intakes by one or more of the following means--

(1) Control of access;

(2) Limitation of exposure times;

(3) Use of respiratory protection equipment; or

(4) Other controls.

(b) If the licensee performs an ALARA analysis to determine whether or not respirators should be used, the licensee may consider safety factors other than radiological factors. The licensee should also consider the impact of respirator use on workers' industrial health and safety.

§ N.J.A.C. 7:28-7.7 Use of individual respiratory protection equipment.

If the licensee assigns or permits the use of respiratory protection equipment to limit the intake of radioactive material,

(a) The licensee shall use only respiratory protection equipment that is tested and certified by the National Institute for Occupational Safety and Health (NIOSH) except as otherwise noted in this part.

(b) If the licensee wishes to use equipment that has not been tested or certified by NIOSH, or for which there is no schedule for testing or certification, the licensee shall submit an application to the NRC for

authorized use of this equipment except as provided in this part. The application must include evidence that the material and performance characteristics of the equipment are capable of providing the proposed degree of protection under anticipated conditions of use. This must be demonstrated either by licensee testing or on the basis of reliable test information.

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

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

(2) Surveys and bioassays, as necessary, to evaluate actual intakes;

(3) Testing of respirators for operability (user seal check for face sealing devices and functional check for others) immediately prior to each use;

(4) Written procedures regarding--

(i) Monitoring, including air sampling and bioassays;

(ii) Supervision and training of respirator users;

(iii) Fit testing;

(iv) Respirator selection;

(v) Breathing air quality;

(vi) Inventory and control;

(vii) Storage, issuance, maintenance, repair, testing, and quality assurance of respiratory protection equipment;

(viii) Recordkeeping; and

(ix) Limitations on periods of respirator use and relief from respirator use;

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

(i) Before the initial fitting of a face sealing respirator;

(ii) Before the first field use of non-face sealing respirators, and

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

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

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

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

(f) Standby rescue persons are required whenever one-piece atmosphere-supplying suits, or any

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

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

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

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

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

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

(5) Lack of noticeable odor.

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

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

§ N.J.A.C. 7:28-7.8 Further restrictions on the use of respiratory protection equipment.

The Department may impose restrictions in addition to the provisions of §§ N.J.A.C. 7:28-7.7, 7.8, and Appendix A to10 CFR 20, herein incorporated by reference, in order to:

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

(b) Limit the extent to which a licensee may use respiratory protection equipment instead of process or other engineering controls.

§ N.J.A.C. 7:28-7.9 Application for use of higher assigned protection factors.

The licensee shall obtain authorization from the Commission before using assigned protection factors in excess of those specified in the appendix of this subchapter. The Commission may authorize a licensee to use higher assigned protection factors on receipt of an application that--

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

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

SUBCHAPTER 8. RECORDS

§ 7:28-8.1 General provisions.

(a) Each licensee or registrant shall use the units: curie, rad, rem, including multiples and subdivisions, and shall clearly indicate the units of all quantities on records required by this part.

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

(c) Not withstanding the requirements of paragraph (a) of this section, when recording information on shipment manifests, as required in § 7:28-11.10(b), information must be recorded in the International System of Units (SI) or in SI and units as specified in paragraph (a) of this section.

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

§ 7:28-8.2 Records of radiation protection programs.

(a) Each licensee or registrant shall maintain records of the radiation protection program, including:

(1) The provisions of the program; and

(2) Audits and other reviews of program content and implementation.

(b) The licensee shall retain the records required by paragraph (a)(1) of this section until the Department terminates each pertinent license requiring the record. The licensee shall retain the records required by paragraph (a)(2) of this section for 3 years after the record is made.

(c) The registrant shall retain the records required by paragraph (a)(1) for as long as the ionizing radiation producing machine is owned plus one year.

[§ 7:28-8.1 Personnel-monitoring records

(a) Clear and legible records shall be maintained by the owner for calendar quarters on Form RH-26, or on a clear and legible form containing all the information required on RH-26. These records shall show the radiation exposures of all individuals who are required to wear personnel-monitoring equipment according to Section 7.4 (Use of personnel-monitoring equipment) of this Chapter and any required bio-assays according to Section 7.5 (Requirements for bio-assays) of this Chapter.

(b) Each employee, at his request, shall be supplied by the owner with an annual statement of his radiation exposure record and any bio-assays.

(c) At the request of an individual formerly employed by the owner, each owner shall furnish such individual a report of his exposure to radiation, including bio-assays, as shown in records maintained by the owner pursuant to subsection (a) of this Section. Such report shall be furnished within 30 days from the time the request is made or within 60 days from termination of employment, whichever is later. The report shall cover each calendar quarter of the individual's employment involving exposure to radiation.

(d) When an individual working on the premises of an owner, but not employed by him, is required by the owner to wear personnel-monitoring equipment, the owner of the radiation source shall furnish such individual's employer within 90 days a statement of the individual's radiation record and this shall be incorporated in the individual's exposure record.

(e) Each report or statement required by subsections (b) through (d) of this Section shall contain the following statement: "This report is furnished to you under the provisions of Subchapter 8 of the New Jersey Radiation Protection Code. You should preserve this report for future reference."

(f) The exposure records on each employee shall be preserved during the course of his employment and for at least ten years after termination of employment. Exposure records of other persons shall be preserved for at least ten years.

(g) These records or true copy of same shall be made available to the Department on request.]

§ 7:28-8.[2]3 Records of surveys

[(a) Records shall be maintained showing the results of such surveys as are required pursuant to Subchapter 7 (Radiation Surveys and Personnel Monitoring) of this Chapter.

(b) The records of each survey shall be retained for at least ten years.]

(a) Each licensee or registrant shall maintain records showing the results of surveys and calibrations required by §§ 7:28-7.1 and 7:28-10.11(b), if applicable. The licensee shall retain these records for 3 years after the record is made. The registrant shall maintain these records for as long as the ionizing radiation producing machine is owned, plus one year.

(b) The licensee shall retain each of the following records until the Department terminates each pertinent license requiring the record:

(1) Records of the results of surveys to determine the dose from external sources and used, in the absence of or in combination with individual monitoring data, in the assessment of individual dose equivalents. This includes those records of results of surveys to determine the dose from external sources and used, in the absence of or in combination with individual monitoring data, in the assessment

of individual dose equivalents required under the standards for protection against radiation in effect prior to January 1, 1994; and

(2) Records of the results of measurements and calculations used to determine individual intakes of radioactive material and used in the assessment of internal dose. This includes those records of the results of measurements and calculations used to determine individual intakes of radioactive material and used in the assessment of internal dose required under the standards for protection against radiation in effect prior to January 1, 1994; and

(3) Records showing the results of air sampling, surveys, and bioassays required pursuant to § 7:28-7.7(c)(1) and (2). This includes those records showing the results of air sampling, surveys, and bioassays required under the standards for protection against radiation in effect prior to January 1, 1994; and

(4) Records of the results of measurements and calculations used to evaluate the release of radioactive effluents to the environment. This includes those records of the results of measurements and calculations used to evaluate the release of radioactive effluents to the environment required under the standards for protection against radiation in effect prior to January 1, 1994.

(c) These records or true copy of same shall be made available to the Department on request.

(d) The owner of any ionizing radiation producing machine covered in this Chapter shall submit to the Department within 30 days of receipt a copy of each report of radiation surveys made in compliance with Subchapter 7 (Radiation Surveys and Personnel Monitoring) of this Chapter.

§ 7:28-8.[3]4 Records of radioactive materials

(a) An accurate accounting for all radioactive materials shall be maintained for a radiation installation. Such records shall show radioactive materials received, produced, and disposed, the amounts and form of the radioactive material received or produced and the amount on hand.

(b) Such records shall be retained for at least two years after the final disposition of any radioactive material.

(c) These records or true copy of same shall be made available to the Department on request.

§ 7:28-8.[4]5 Records of sealed source testing

Records of the results of sealed source testing shall be kept at least two years.

§ 7:28-8.[5]6 Records from discontinued installations

The discontinuance of a radiation installation does not relieve the owner from the responsibility of retaining the records required by this Subchapter. Such owner may, however, request the Department to accept the records. The acceptance of such records by the Department relieves the owner of subsequent responsibility only in respect to their preservation as required by this Chapter.

§ N.J.A.C. 7:28-8.7 **Determination of prior occupational dose.**

(a) For each individual who is likely to receive in a year, an occupational dose requiring monitoring pursuant to § N.J.A.C. 7:28-7.3 the licensee or registrant shall--

(1) Determine the occupational radiation dose received during the current year; and

(2) Attempt to obtain the records of cumulative occupational radiation dose.

(b) Prior to permitting an individual to participate in a planned special exposure, the licensee or registrant shall determine--

(1) The internal and external doses from all previous planned special exposures; and

(2) All doses in excess of the limits (including doses received during accidents and emergencies) received during the lifetime of the individual.

(c) In complying with the requirements of paragraph (a) of this section, a licensee or registrant may--

(1) Accept, as a record of the occupational dose that the individual received during the current year, a written signed statement from the individual, or from the individual's most recent employer for work involving radiation exposure, that discloses the nature and the amount of any occupational dose that the individual may have received during the current year;

(2) Accept, as the record of cumulative radiation dose, an up-to-date NRC Form 4, or equivalent, signed by the individual and countersigned by an appropriate official of the most recent employer for work involving radiation exposure, or the individual's current employer (if the individual is not employed by the licensee); and

(3) Obtain reports of the individual's dose equivalent(s) from the most recent employer for work involving radiation exposure, or the individual's current employer (if the individual is not employed by the licensee) by telephone, telegram, electronic media, or letter. The licensee or registrant shall request a written verification of the dose data if the authenticity of the transmitted report cannot be established.

(d) The licensee or registrant shall record the exposure history of each individual, as required by paragraph (a) of this section, on NRC Form 4[1], or other clear and legible record, including all of the

information required by NRC Form 4[2]. The form or record must show each period in which the individual received occupational exposure to radiation or radioactive material and must be signed by the individual who received the exposure. For each period for which the licensee or registrant obtains reports, the licensee or registrant shall use the dose shown in the report in preparing the NRC Form 4 or equivalent. For any period in which the licensee or registrant does not obtain a report, the licensee or registrant shall place a notation on the NRC Form 4 or equivalent indicating the periods of time for which data are not available.

(e) If the licensee or registrant is unable to obtain a complete record of an individual's current and previously accumulated occupational dose, the licensee or registrant shall assume--

(1) In establishing administrative controls under § N.J.A.C. 7:28-6.1(f) for the current year, that the allowable dose limit for the individual is reduced by 1.25 rems (12.5 mSv) for each quarter for which records were unavailable and the individual was engaged in activities that could have resulted in occupational radiation exposure; and

(2) That the individual is not available for planned special exposures.

(f) The licensee shall retain the records on NRC Form 4 or equivalent until the Department terminates each pertinent license requiring this record. The licensee shall retain records used in preparing NRC Form 4 or equivalent for 3 years after the record is made. This includes records required under the standards for protection against radiation in effect prior to January 1, 1994.

(g) The registrant shall retain the records on RH-27 or equivalent until the ionizing radiation producing machine is no longer owned plus one year.

[1] For registrants, RH-27 is equivalent to NRC Form 4.

[2] Licensees or registrants are not required to partition historical dose between external dose equivalent(s)

and internal committed dose equivalent(s). Further, occupational exposure histories obtained and recorded on NRC Form 4 or equivalent before January 1, 1994, might not have included effective dose equivalent, but may be used in the absence of specific information on the intake of radionuclides by the individual.

§ N.J.A.C. 7:28-8.8 **Records of planned special exposures.**

(a) For each use of the provisions of § N.J.A.C. 7:28-6.5 for planned special exposures, the licensee or registrant shall maintain records that describe--

(1) The exceptional circumstances requiring the use of a planned special exposure; and

(2) The name of the management official who authorized the planned special exposure and a copy of the signed authorization; and

(3) What actions were necessary; and

(4) Why the actions were necessary; and

(5) How doses were maintained ALARA; and

(6) What individual and collective doses were expected to result, and the doses actually received in the planned special exposure.

(b) The licensee shall retain the records until the Department terminates each pertinent license requiring these records.

(c) The registrant shall retain the records until the ionizing radiation producing machine is no longer owned plus one year.

§ N.J.A.C. 7:28-8.9 **Records of individual monitoring results.**

(a) *Recordkeeping requirement.* Each licensee or registrant shall maintain records of doses received by all individuals for whom monitoring was required pursuant to § N.J.A.C. 7:28-7.3, and records of doses received during planned special exposures, accidents, and emergency conditions. These records[3] must include, when applicable--

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

(2) The estimated intake of radionuclides (see § 20.1202);

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

(4) The specific information used to assess the committed effective dose equivalent pursuant to § N.J.A.C. 7:28-6.4(a) and (c), and when required by § N.J.A.C. 7:28-7.3;

(5) The total effective dose equivalent when required by § N.J.A.C. 7:28-6.2; and

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

(b) *Recordkeeping frequency.* The licensee or registrant shall make entries of the records specified in paragraph (a) of this section at least annually.

(c) *Recordkeeping format.* The licensee or registrant shall maintain the records specified in paragraph (a) of this section on NRC Form 5[4] or equivalent, in accordance with the instructions for NRC Form 5 or equivalent, or in clear and legible records containing all the information required by NRC Form 5.

(d) *Privacy protection.* The records required under this section should be protected from public disclosure because of their personal privacy nature. These records are protected by New Jersey State

privacy laws and, when transferred to the NRC, are protected by the Privacy Act of 1974, Public Law 93-579, 5 U.S.C. 552a, and the Commission's regulations in 10 CFR part 9.

(e) The licensee or registrant shall maintain the records of dose to an embryo/fetus with the records of dose to the declared pregnant woman. The declaration of pregnancy shall also be kept on file, but may be maintained separately from the dose records.

(f) The licensee shall retain the required form or record until the Department terminates each pertinent license requiring this record. This includes records required under the standards for protection against radiation in effect prior to January 1, 1994.

(g) The registrant shall retain the required form or record until the ionizing radiation producing machine is no longer owned, plus one year.

(h) Each employee, at his request, shall be supplied by the owner with an annual statement of his radiation exposure record and any bio-assays.

(i) At the request of an individual formerly employed by the owner, each owner shall furnish such individual a report of his exposure to radiation, including bio-assays, as shown in records maintained by the owner pursuant to subsection (a) of this Section. Such report shall be furnished within 30 days from the time the request is made or within 60 days from termination of employment, whichever is later. The report shall cover each calendar quarter of the individual's employment involving exposure to radiation.

[3] Assessments of dose equivalent and records made using units in effect before the licensee's adoption of this part need not be changed.

[4] For registrants, Form RH-26 is equivalent to NRC Form 5.

§ N.J.A.C. 7:28-8.10 **Records of dose to individual members of the public.**

(a) Each licensee or registrant shall maintain records sufficient to demonstrate compliance with the dose limit for individual members of the public (see § N.J.A.C. 7:28-6.8).

(b) The licensee shall retain the records required by paragraph (a) of this section until the Department terminates each pertinent license requiring the record.

(c) The registrant shall retain the records required by paragraph (a) of this section until the ionizing radiation producing machine is no longer owned, plus one year.

§ N.J.A.C. 7:28-8.11 **Records of waste disposal.**

(a) Each licensee shall maintain records of the disposal of licensed materials made under §§ N.J.A.C. 7:28-11.7, 11.2, 11.6, 11.9, 59.1 and disposal by burial in soil, including burials authorized before January 28, 1981.[5]

(b) The licensee shall retain the records required by paragraph (a) of this section until the Department terminates each pertinent license requiring the record. Requirements for disposition of these records, prior to license termination, are located in §§ N.J.A.C. 7:28-51.1, 58.1, and 60.1, for activities licensed under these subchapters.

[5] A previous § 10 CFR 20.304 permitted burial of small quantities of licensed materials in soil before January 28, 1981, without specific Commission authorization.

§ N.J.A.C. 7:28-8.12 **Form of records.**

Each record required by this part must be legible throughout the specified retention period. The record may be the original or a reproduced copy or a microform provided that the copy or microform is authenticated by authorized personnel and that the microform is capable of producing a clear copy

OFFICE OF FEDERAL AND STATE MATERIALS AND ENVIRONMENTAL MANAGEMENT PROGRAMS
DIVISION OF INTERGOVERNMENTAL LIAISON AND RULEMAKING
ACTUAL AND PROJECTED TRAVEL - FY 07

DATE OF TRAVEL	DESTINATION	PURPOSE	NAME OF TRAVELER	NUMBER OF TRAVELERS	COST PER TRAVELER	TRIP TOTAL
10/06	Chattanooga, TN	Transportation of Radioactive Materials Training	Firth, James	1	$735.00	$735.00
10/06	Tempe, AZ	ASDWA Conference on Uranium in Drinking Water	Imboden, Andy	1	$1,050.00	$1,050.00
11/06	Chattanooga, TN	State Department Annual Bilateral Meeting with Taiwan - AIT/TECRO	Cool, Donald	1	$842.00	$842.00
11/06	Albany, NY	IMPEP Conference	Rathbun, Dennis & Zobler, Marian	2	$365.00	$730.00
11/06	Baltimore, MD	SES Managerial Retreat	Rathbun, Dennis	1	$156.00	$156.00
11/06	Cambridge, MD	Office of Enforcement Counterpart Meeting	O'Connell, Robert	1	$383.00	$383.00
2/07	Paris, France	NEA Expert Group on ICRP Recommendations	Cool, Donald	1	$2,267.00	$2,267.00
4/07	Austin, TX	CRCPD Committee Meeting	Siurano, Osirus	1	$1,127.00	$1,127.00
4/07	Denver, CO	DOE Tribal Outreach Re: Transportation Issues (Pending)	Smith, Shawn & Turtil, Richard	2	$1,200.00	$2,400.00
4/07	Des Moines, IA	Introduction/Naming of New Iowa A.S. Director (Pending)	Turtil, Richard	1	$1,025.00	$1,025.00
4/07	Dallas, TX	EPA Meeting	Comfort, Gary	1	$841.00	$841.00
4/07	TBD	Risk Communication Training	O'Sullivan, Kevin	1	$2,160.00	$2,160.00
4/07	North Chelmsford, MA	EPA Meeting	Imboden, Andy	1	$560.00	$560.00
4/07	Purdue, IN	Assistance in Materials License Inspection	O'Sullivan, Kevin	1	$1,600.00	$1,600.00
4/07	Newport, CA	Emergency Preparedness Outreach Meeting	Smith, Shawn	1	$1,803.00	$1,803.00
4/07	Rockville, MD	Task Force & Public Education Sub-Committee Meetings (Invitational Travel)	Hamrick, Barbara	1	$1,120.00	$1,120.00
5/07	Sacramento, CA	EPA Meeting	Comfort, Gary	1	$650.00	$650.00
5/07	Chicago, IL	EPA Meeting	Comfort, Gary	1	$650.00	$650.00
5/07	Omaha, NE	EPA Meeting	Comfort, Gary	1	$650.00	$650.00
5/07	Des Moines, IA	Follow-Up: Security Briefing for State of Iowa (Pending)	Smith, Shawn & Turtil, Richard	2	$650.00	$1,300.00
5/07	Spokane, WA	CRCPD Annual Conference (Pending)	Bubar, Patrice & Turtil, Richard	2	$1,200.00	$2,400.00
6/07	Atlanta, GA	Provide Training on NMMSS Proposed Rule	Bhalla, Neelam	1	$750.00	$750.00
6/07	TBD	HP In Radiation Emergencies (ORISE)	O'Sullivan, Kevin	1	$1,400.00	$1,400.00
6/07	Anchorage, AK	National Conference, American Indians Mid-Year	Smith, Shawn & Rathbun, Dennis	2	$2,000.00	$4,000.00
7/07	Washington, DC	Regulatory Drafting Process Training	McDaniel, Keith	1	$600.00	$600.00
7/07	St. Louis, MO	Assistance in Materials License Inspection	O'Sullivan, Kevin	1	$1,600.00	$1,600.00
7/07	Portland, OR	HPS/NRRPT Joint Meeting	Lohr, Edward	1	$2,000.00	$2,000.00
7/07	Vienna, Austria	Technical Meeting on the Revision of the Basic Safety Standards	Cool, Donald	1	$2,500.00	$2,500.00
8/07	Yukon River, AK	Outreach to YRITWC (Pending)	Smith, Shawn & Turtil, Richard	2	$4,000.00	$8,000.00
8/07	Washington, DC	Advanced Regulation Drafting Course	McDaniel, Keith	1	$600.00	$600.00
8/07	Boston, MA	Radiological Emergency Planning	Chang, Lydia	1	$1,200.00	$1,200.00
9/07	Charlottesville, VA	Leaders Growing Leaders Training	Delligatti, Mark	1	$2,490.00	$2,490.00
9/07	Rockville, MD	Rehired Annuitant Travel	Essig, Thomas	1	$2,500.00	$2,500.00
10/07	TBD	Strictly Business: Dale Carnegie Seminar	Firth, James & Taylor, Torre	2	$1,446.00	$2,892.00
11/07	Berlin, Germany	International Commission on Radiological	Cool, Donald	1	$2,500.00	$2,500.00

OFFICE OF FEDERAL AND STATE MATERIALS AND ENVIRONMENTAL MANAGEMENT PROGRAMS

DIVISION OF INTERGOVERNMENTAL LIAISON AND RULEMAKING

ACTUAL AND PROJECTED TRAVEL - FY 07

Draft Agenda
IT Focus Group meeting
Wednesday, June 13, 2007, 1 pm - 4:30 pm
Thursday, June 14, 2007, 8:30 am - 11:30 am
Room O16B2

Wednesday, June 13, 1:00 pm - 4:30 pm

1:00 Welcome - James Corbett (OIS/BPIAD)
1:15 Data Information Sharing Hub (DISH) - Dereje Tessema (OIS/BPIAD)
2:00 OIS Technology roadmap – David Curtis (OIS/ICOD)
2:45 Questions and break
3:00 Next generation ADAMS - Greg Fabian (OIS/IRSD)
3:45 Vendor - tbd

Adjourn by 4:30 pm

Thursday, June 14, 8:30 am - noon

8:30 Project Management Office - Sophonia Simms (OIS/BPIAD)
9:15 IM/Unified communication - Evan Jones (OIS/ICOD), Jim Wiehl (CEXEC)
10:00 Break
10:15 Microsoft Exchange and Outlook 2007 implementation - Bob Randall (OIS/ICOD)
11:00 tbd

From: Michael Lesar
To: Andrew Mauer
Date: 06/04/2007 7:42:54 AM
Subject: Re: Concurrence Requested: Draft FRN

Concur with changes indicated in the attached renamed document.

>>> Andrew Mauer 06/01/2007 3:01 PM >>>
Mike:

Your concurrence is requested on the attached draft FRN. I'll be out of the office next week, so if you have any questions, please contact Duane White (415-6272).

Thanks,
Andrew

CC: Betty Golden; Cindy Bladey; Duane White

7590-01-P

Nuclear Regulatory Commission

10 CFR Chapter I

RIN 3150-AH84

Expanded Definition of Byproduct Material; Notification of Waiver Termination

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of waiver termination.

SUMMARY: This document announces that on Month xx, 2007, in accordance with Section 651e. of the Energy Policy Act of 2005 and the provisions of the Plan for Transition of Regulatory Authority Resulting from the Expanded Definition of Byproduct Material (transition plan) issued by the U.S. Nuclear Regulatory Commission (Commission or NRC) on Month xx, 2007; **[FR CITATION]**, Dale E. Klein, NRC Chairman, determined that the States listed below have a program to license byproduct material, as defined in Sections 11e.(3) and (4) of the Atomic Energy Act of 1954, as amended, that is adequate to protect the public health and safety. This determination is based on certifications provided to the Commission by Governors of these States.

Alabama, Arizona, Arkansas, California, Colorado, Florida, Georgia, Iowa, Illinois, Kansas, Kentucky, Louisiana, Massachusetts, Maine, Maryland, Minnesota, Mississippi, Nebraska, Nevada, New Hampshire, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Rhode Island, South Carolina, Tennessee, Texas, Utah, Washington, and Wisconsin.

In accordance with Section 651(e)(4)(C)(iii) of the Energy Policy Act of 2005, the Agreements entered into between the Commission and each of these States under Section 274 b. of the Atomic Energy Act of 1954, as amended, are considered to include byproduct material as defined in Sections 11e.(3) and (4) as of Month xx, 2007.

Accordingly, on Month xx, 2007 the Commission terminated the time-limited waivers of the Energy Policy Act of 2005 requirements granted by the Commission (70 FR 51581; August 31, 2005) to the each of these States. Users of the newly added byproduct material currently licensed or registered by these States will continue to be subject to the State regulatory authority.

FOR FURTHER INFORMATION CONTACT: Andrew N. Mauer, Office of Federal and State Materials and Environmental Management Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-3962 or e-mail ANM@NRC.GOV.

SUPPLEMENTARY INFORMATION: Copies of the Governors' certifications and the Commission's decision may be reviewed at the NRC web site http://www.nrc.gov.

Dated at Rockville, Maryland, this day of , 2007.

For the Nuclear Regulatory Commission.

Annette L. Vietti-Cook,
Secretary of the Commission.

In accordance with Section 651(e)(4)(C)(iii) of the Energy Policy Act of 2005, the Agreements entered into between the Commission and each of these States under Section 274 b. of the Atomic Energy Act of 1954, as amended, are considered to include byproduct material as defined in Sections 11e.(3) and (4) as of Month xx, 2007.

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SUPPLEMENTARY INFORMATION: Copies of the Governors' certifications and the Commission's decision may be reviewed at the NRC web site http://www.nrc.gov.

Dated at Rockville, Maryland, this [redacted] day of [redacted], 2007.

For the Nuclear Regulatory Commission.

_____
Annette L. Vietti-Cook,
Secretary of the Commission.

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OFFICIAL RECORD COPY

§ N.J.A.C. 7:28-8.10 **Records of dose to individual members of the public.**

(a) Each licensee or registrant shall maintain records sufficient to demonstrate compliance with the dose limit for individual members of the public (see § N.J.A.C. 7:28-6.8).

(b) The licensee shall retain the records required by paragraph (a) of this section until the Department terminates each pertinent license requiring the record.

(c) The registrant shall retain the records required by paragraph (a) of this section until the ionizing radiation producing machine is no longer owned, plus one year.

§ N.J.A.C. 7:28-8.11 **Records of waste disposal.**

(a) Each licensee shall maintain records of the disposal of licensed materials made under §§ N.J.A.C. 7:28-11.7, 11.2, 11.6, 11.9, 59.1 and disposal by burial in soil, including burials authorized before January 28, 1981.[5]

(b) The licensee shall retain the records required by paragraph (a) of this section until the Department terminates each pertinent license requiring the record. Requirements for disposition of these records, prior to license termination, are located in §§ N.J.A.C. 7:28-51.1, 58.1, and 60.1, for activities licensed under these subchapters.

[5] A previous § 10 CFR 20.304 permitted burial of small quantities of licensed materials in soil before January 28, 1981, without specific Commission authorization.

§ N.J.A.C. 7:28-8.12 **Form of records.**

Each record required by this part must be legible throughout the specified retention period. The record may be the original or a reproduced copy or a microform provided that the copy or microform is authenticated by authorized personnel and that the microform is capable of producing a clear copy

throughout the required retention period. The record may also be stored in electronic media with the capability for producing legible, accurate, and complete records during the required retention period. Records, such as letters, drawings, and specifications, must include all pertinent information, such as stamps, initials, and signatures. The licensee or registrant shall maintain adequate safeguards against tampering with and loss of records.

SUBCHAPTER 9. RADIOACTIVE CONTAMINATION CONTROL

§ 7:28-9.1 General precautions

All work with radioactive materials shall be carried out under such conditions as to minimize the radioactive contamination of the area and of the person(s) working therein.

§ 7:28-9.2 Personnel and material contamination

(a) When the nature of the work is such that an individual or his clothing may become contaminated, the individual and his clothing shall be suitably monitored.

(b) Any contamination which might lead to exposures greater than ten per cent of the limits specified in Section 6.1[(a) or (d) (Exposure of individuals in controlled areas)] (Occupational dose limits for adults) of this Chapter shall be removed from the contaminated individual before that individual is permitted to leave the area.

(c) No clothing, equipment, or other material having contamination which might lead to exposures greater than those specified in subsection (b) of this Section shall be permitted to leave the area except as radioactive material.

§ 7:28-9.3 Decontamination of premises

Radioactively contaminated premises shall be decontaminated so that individuals using these premises shall not receive exposures greater than those listed in Section 9.2(b) (Personnel and material contamination) of this Chapter.

§ 7:28-9.4 Sealed source testing

(a) Unless otherwise specified in a [Federal agency] license, [or a State license,] specifically licensed sealed sources except tritium and krypton, [containing more than 10 times the generally licensed quantities of *N.J.A.C. 7:28-4.5(c)* Column B] shall be leak tested at intervals not longer than six months.

(b) Records of all sealed source testing shall be kept in accordance with Section 8.[4]5 (Records of sealed source testing) of this Chapter.

§ 7:28-9.5 Security of stored material.

The licensee shall secure from unauthorized removal or access licensed materials that are stored in controlled or unrestricted areas.

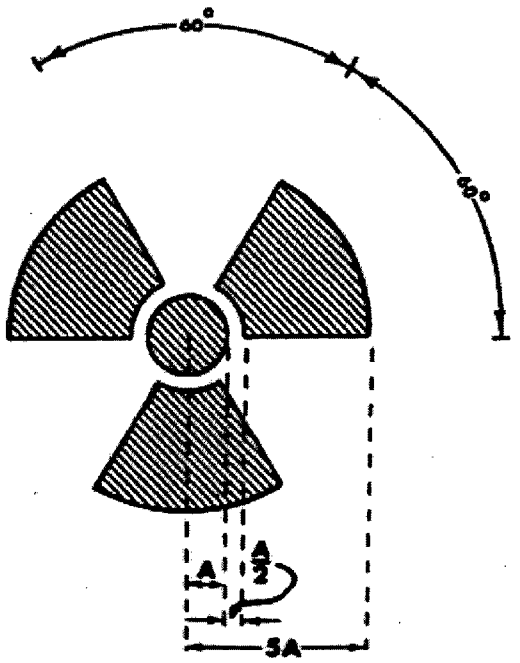
§ 7:28-9.6 Control of material not in storage.

The licensee shall control and maintain constant surveillance of licensed material that is in a controlled or unrestricted area and that is not in storage.

SUBCHAPTER 10. LABELING, POSTING, AND CONTROLS

§ 7:28-10.1 General requirement

(a) All signs and labels required by this Subchapter shall use the conventional radiation caution symbol shaped and colored as follows:



RADIATION SYMBOL

1. Cross-hatched area is to be magenta or purple or black, and[;]

2. Background is to be yellow.

(b) In addition to the language prescribed in the various sections of this Subchapter, any supplementary information which might be appropriate in aiding individuals to minimize exposure to radiation or to radioactive materials may be provided on or near such required signs or labels.

(c) *Exception to color requirements for standard radiation symbol.* Notwithstanding the

requirements of paragraph (a) of this section, licensees are authorized to label sources, source holders, or device components containing sources of licensed materials that are subjected to high temperatures, with conspicuously etched or stamped radiation caution symbols and without a color requirement.

(d) *Additional information on signs and labels.* In addition to the contents of signs and labels prescribed in this part, the licensee may provide, on or near the required signs and labels, additional information, as appropriate, to make individuals aware of potential radiation exposures and to minimize the exposures.

§ 7:28-10.2 Radiation areas

(a) Each radiation area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

1. CAUTION--RADIATION AREA; [or

2. DANGER--RADIATION AREA]

§ 7:28-10.3 High radiation areas

(a) Each high radiation area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

1. CAUTION--HIGH RADIATION AREA; or

2. DANGER--HIGH RADIATION AREA

[(b) Each high radiation area shall be under direct, constant surveillance to protect against unauthorized or accidental entry unless:

1. It is equipped with a control device which shall cause the level of radiation to be reduced below that at which an individual might receive a dose of 100 millirems in one hour upon entry into the area;

2. It is equipped with a control device which shall energize a conspicuous visible or audible alarm signal in such a manner that the individual entering and the owner or the supervisor of the activity are made aware of the entry; or

3. It is locked to protect against unauthorized or accidental entry and the owner or the supervisor of the activity maintains direct personal control over access to the key.]

(b) The licensee or registrant shall ensure that each entrance or access point to a high radiation area has one or more of the following features--

(1) A control device that, upon entry into the area, causes the level of radiation to be reduced below that level at which an individual might receive a deep-dose equivalent of 0.1 rem (1 mSv) in 1 hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates;

(2) A control device that energizes a conspicuous visible or audible alarm signal so that the individual entering the high radiation area and the supervisor of the activity are made aware of the entry; or

(3) Entryways that are locked, except during periods when access to the areas is required, with positive control over each individual entry.

(c) In place of the controls required by paragraph (a) of this section for a high radiation area, the licensee or registrant may substitute continuous direct or electronic surveillance that is capable of preventing unauthorized entry.

(d) A licensee or registrant may apply to the Department for approval of alternative methods for

controlling access to high radiation areas.

(e) The licensee or registrant shall establish the controls required by paragraphs (a) and (c) of this section in a way that does not prevent individuals from leaving a high radiation area.

(f) Control is not required for each entrance or access point to a room or other area that is a high radiation area solely because of the presence of radioactive materials prepared for transport and packaged and labeled in accordance with the regulations of the Department of Transportation provided that--

(1) The packages do not remain in the area longer than 3 days; and

(2) The dose rate at 1 meter from the external surface of any package does not exceed 0.01 rem (0.1 mSv) per hour.

(g) Control of entrance or access to rooms or other areas in hospitals is not required solely because of the presence of patients containing radioactive material, provided that there are personnel in attendance who will take the necessary precautions to prevent the exposure of individuals to radiation or radioactive material in excess of the limits established in this part and to operate within the ALARA provisions of the licensee's radiation protection program.

§ 7:28-10.4 Very high radiation areas

(a) Each very high radiation area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

1. GRAVE DANGER--VERY HIGH RADIATION AREA

(b) In addition to the requirements in § N.J.A.C. 7:28-10.3, the licensee or registrant shall institute additional measures to ensure that an individual is not able to gain unauthorized or inadvertent access to

areas in which radiation levels could be encountered at 500 rads (5 grays) or more in 1 hour at 1 meter from a radiation source or any surface through which the radiation penetrates.

§ 7:28-10.[4]5 Airborne radioactivity areas

(a) Each airborne radioactivity area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words;

1. CAUTION--AIRBORNE RADIOACTIVITY AREA; or

2. DANGER--AIRBORNE RADIOACTIVITY AREA

§ 7:28-10.[5]6 Areas containing radioactive materials

(a) Each area or room in which radioactive material[, other than natural uranium or thorium] is used or stored in an amount greater than ten times that listed in Section 10.[9]12 (Labeling, posting and disposal quantities of radioactive material) of this Chapter shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

1. CAUTION--RADIOACTIVE MATERIAL(S); or

2. DANGER--RADIOACTIVE MATERIAL(S)

[(b) Each area or room in which natural uranium or thorium is used or stored in an amount exceeding 100 times the quantity listed in Section 10.9 (Labeling, posting and disposal quantities of radioactive material) of this Chapter shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

1. CAUTION--RADIOACTIVE MATERIAL(S); or

2. DANGER--RADIOACTIVE MATERIAL(S)]

§ 7:28-10.[6]7 Labeling of equipment and containers

(a) Any equipment or container in which radioactive material[, other than natural uranium or thorium,] is transported, stored, or used, in an amount greater than that specifically listed in Section 10.[9]12 (Labeling, posting and disposal quantities of radioactive material) of this Chapter shall bear a durable, clearly visible label bearing the radiation caution symbol and the words:

1. CAUTION--RADIOACTIVE MATERIAL; or

2. DANGER--RADIOACTIVE MATERIAL

[(b) Each container in which natural uranium or thorium is transported, stored, or used in a quantity greater than 10 times the quantity listed in Section 10.[9]12 (Labeling, posting and disposal quantities of radioactive material) of this Chapter shall bear a durable, clearly visible label bearing the radiation caution symbol and the words:

1. CAUTION--RADIOACTIVE MATERIAL; or

2. DANGER--RADIOACTIVE MATERIAL]

(b) The licensee shall ensure that each container of licensed material bears a durable, clearly visible label bearing the radiation symbol and the words "CAUTION, RADIOACTIVE MATERIAL" or "DANGER, RADIOACTIVE MATERIAL." The label must also provide sufficient information (such as the radionuclide(s) present, an estimate of the quantity of radioactivity, the date for which the activity is estimated, radiation levels, kinds of materials, and mass enrichment) to permit individuals handling or using the containers, or working in the vicinity of the containers, to take precautions to avoid or minimize exposures.

[(c) Where containers are used for storage, the labels required in this Section shall state also the quantities and kinds of radioactive materials in the containers and the date of measurement of the quantities.]

([d]c) All radiation-producing machines capable, when operated, of producing a radiation area shall be labeled in a manner which cautions individuals of this fact.

§ 7:28-10.[7]8 Removal of signs and labels

[All radiation caution signs and labels which may have been posted at a time when they were required shall be removed when the condition which originally required the posting no longer exists.] Each licensee shall, prior to removal or disposal of empty uncontaminated containers to unrestricted areas, remove or deface the radioactive material label or otherwise clearly indicate that the container no longer contains radioactive materials.

§ 7:28-10.[8]9 Exceptions from posting and labeling requirements

(a) Radiation areas and high radiation areas which result from the operation of therapeutic x-ray machines operated at potentials of 60 kv and below or from the operation of diagnostic x-ray machines shall be exempt from the posting requirements of Sections 10.2, 10.3 and 10.6(d) of this Chapter provided that the operator of the equipment has taken precautions to insure that no individual other than the patient shall be in the radiation area.

(b) Rooms or other areas in hospitals are not required to be posted with radiation caution signs because of the presence of patients containing radioactive material provided that [there are personnel in

attendance who shall take the precautions necessary to prevent the exposure of any individual other than the patient to radiation or radioactive material in excess of the limits established in this Chapter] the patient could be released from licensee control pursuant to § N.J.A.C. 7:28-55.1.

(c) A room or area is not required to be posted with a radiation caution sign because of the presence of a sealed source provided the radiation level 12 inches from the surface of the source container or source housing does not exceed five millirems (0.05mSv) per hour.

(d) Radiation caution signs are not required to be posted at areas or rooms containing radioactive materials for periods of less than eight hours provided that:

1. The materials are constantly attended during such periods by an individual who shall take the precautions necessary to prevent the exposure of any other individual to radiation or radioactive materials in excess of the limits established in these regulations; and

2. Such area or room is subject to the [user's] licensee's or registrant's control.

(e) Laboratory containers such as beakers, flasks and test tubes need not be labeled if they are being used transiently in laboratory procedures when the user is present.

[(f) A container in which radioactive material is transported, stored, or used need not be labeled, if the concentration of the material in the container does not exceed that specified in Section 6.5(a) (Average concentrations) of this Chapter, Column A.]

([g]f) Radioactive materials packaged and labeled in accordance with regulations of the appropriate Federal agency shall be exempt from the labeling and posting requirements of this Section during shipment, provided that the inside containers are labeled in accordance with the provisions of Section 10.[6] 7 (Labeling of equipment and containers) of this Chapter.

(g) Rooms in hospitals or clinics that are used for teletherapy are exempt from the requirement to

post caution signs under this Subchapter if--

(1) Access to the room is controlled pursuant to N.J.A.C. 7:28-55.1; and

(2) Personnel in attendance take necessary precautions to prevent the inadvertent exposure of workers, other patients, and members of the public to radiation in excess of the limits established in this part.

§ N.J.A.C. 7:28-10.10 Exemptions to labeling requirements.

A licensee or registrant is not required to label--

(a) Containers holding licensed material in quantities less than the quantities listed in N.J.A.C. 7:28-10.12; or

(b) Containers holding licensed material in concentrations less than those specified in table 2 of the appendix subchapter 11; or

(c) Containers attended by an individual who takes the precautions necessary to prevent the exposure of individuals in excess of the limits established by this part; or

(d) Containers when they are in transport and packaged and labeled in accordance with the regulations of the Department of Transportation,[3] or

(e) Containers that are accessible only to individuals authorized to handle or use them, or to work in the vicinity of the containers, if the contents are identified to these individuals by a readily available written record (examples of containers of this type are containers in locations such as water-filled canals, storage vaults, or hot cells). The record must be retained as long as the containers are in use for the

purpose indicated on the record; or

(f) Installed manufacturing or process equipment, such as reactor components, piping, and tanks.

[3] Labeling of packages containing radioactive materials is required by the Department of Transportation (DOT) if the amount and type of radioactive material exceeds the limits for an excepted quantity or article as defined and limited by DOT regulations 49 CFR 173.403 (m) and (w) and 173.421-424.

§ N.J.A.C. 7:28-10.11 Procedures for receiving and opening packages.

(a) Each licensee who expects to receive a package containing quantities of radioactive material in excess of a Type A quantity, as defined in § N.J.A.C. 7:28-61.1 and appendix A to subchapter 61 of this chapter, shall make arrangements to receive--

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

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

(b) Each licensee shall--

(1) Monitor the external surfaces of a labeled[3a] package for radioactive contamination unless the package contains only radioactive material in the form of a gas or in special form as defined in N.J.A.C. 7:28-61.1;

(2) Monitor the external surfaces of a labeled[3a] package for radiation levels unless the package contains quantities of radioactive material that are less than or equal to the Type A quantity, as defined in § N.J.A.C. 7:28-61.1 and appendix A to subchapter 61 of this chapter; and

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

(c) The licensee shall perform the monitoring required by paragraph (b) of this section as soon as practical after receipt of the package, but not later than 3 hours after the package is received at the licensee's facility if it is received during the licensee's normal working hours, or not later than 3 hours from the beginning of the next working day if it is received after working hours.

(d) The licensee or registrant shall immediately notify the final delivery carrier and the Department's 24 hour Emergency notification (1-888-WARN DEP), by telephone, when--

(1) Removable radioactive surface contamination exceeds the limits of § 61.87(i) of this chapter; or

(2) External radiation levels exceed the limits of § 61.47 of this chapter.

(e) Each licensee or registrant shall--

(1) Establish, maintain, and retain written procedures for safely opening packages in which radioactive material is received; and

(2) Ensure that the procedures are followed and that due consideration is given to special instructions for the type of package being opened.

(f) Licensees transferring special form sources in licensee-owned or licensee-operated vehicles to and from a work site are exempt from the contamination monitoring requirements of paragraph (b) of this section, but are not exempt from the survey requirement in paragraph (b) of this section for measuring radiation levels that is required to ensure that the source is still properly lodged in its shield.

[3a] Labeled with a Radioactive White I, Yellow II, or Yellow III label as specified in U.S. Department of

Transportation regulations, 49 CFR 172.403 and 172.436-440.

§ 7:28-10.[9]12 Quantities of radioactive materials that require labeling and posting

(a) The quantities of radioactive material subject to all labeling and posting regulations in atomic number order are as follows:

Quantities of Licensed or Registered Material Requiring Labeling

(In Atomic Number Order)

Radionuclide	Quantity (uCi)
Hydrogen-3	1,000
Beryllium-7	1,000
Beryllium-10	1
Carbon-11	1,000
Carbon-14	100
Fluorine-18	1,000
Sodium-22	10
Sodium-24	100
Magnesium-28	100
Aluminum-26	10
Silicon-31	1,000
Silicon-32	1
Phosphorus-32	10
Phosphorus-33	100
Sulfur-35	100
Chlorine-36	10

Chlorine-38	1,000
Chlorine-39	1,000
Argon-39	1,000
Argon-41	1,000
Potassium-40	100
Potassium-42	1,000
Potassium-43	1,000
Potassium-44	1,000
Potassium-45	1,000
Calcium-41	100
Calcium-45	100
Calcium-47	100
Scandium-43	1,000
Scandium-44m	100
Scandium-44	100
Scandium-46	10
Scandium-47	100
Scandium-48	100
Scandium-49	1,000
Titanium-44	1
Titanium-45	1,000
Vanadium-47	1,000
Vanadium-48	100
Vanadium-49	1,000
Chromium-48	1,000
Chromium-49	1,000
Chromium-51	1,000
Manganese-51	1,000
Manganese-52m	1,000

Manganese-52	100
Manganese-53	1,000
Manganese-54	100
Manganese-56	1,000
Iron-52	100
Iron-55	100
Iron-59	10
Iron-60	1
Cobalt-55	100
Cobalt-56	10
Cobalt-57	100
Cobalt-58m	1,000
Cobalt-58	100
Cobalt-60m	1,000
Cobalt-60	1
Cobalt-61	1,000
Cobalt-62m	1,000
Nickel-56	100
Nickel-57	100
Nickel-59	100
Nickel-63	100
Nickel-65	1,000
Nickel-66	10
Copper-60	1,000
Copper-61	1,000
Copper-64	1,000
Copper-67	1,000
Zinc-62	100
Zinc-63	1,000

Zinc-65	10
Zinc-69m	100
Zinc-69	1,000
Zinc-71m	1,000
Zinc-72	100
Gallium-65	1,000
Gallium-66	100
Gallium-67	1,000
Gallium-68	1,000
Gallium-70	1,000
Gallium-72	100
Gallium-73	1,000
Germanium-66	1,000
Germanium-67	1,000
Germanium-68	10
Germanium-69	1,000
Germanium-71	1,000
Germanium-75	1,000
Germanium-77	1,000
Germanium-78	1,000
Arsenic-69	1,000
Arsenic-70	1,000
Arsenic-71	100
Arsenic-72	100
Arsenic-73	100
Arsenic-74	100
Arsenic-76	100
Arsenic-77	100
Arsenic-78	1,000

Selenium-70	1,000
Selenium-73m	1,000
Selenium-73	100
Selenium-75	100
Selenium-79	100
Selenium-81m	1,000
Selenium-81	1,000
Selenium-83	1,000
Bromine-74m	1,000
Bromine-74	1,000
Bromine-75	1,000
Bromine-76	100
Bromine-77	1,000
Bromine-80m	1,000
Bromine-80	1,000
Bromine-82	100
Bromine-83	1,000
Bromine-84	1,000
Krypton-74	1,000
Krypton-76	1,000
Krypton-77	1,000
Krypton-79	1,000
Krypton-81	1,000
Krypton-83m	1,000
Krypton-85m	1,000
Krypton-85	1,000
Krypton-87	1,000
Krypton-88	1,000
Rubidium-79	1,000

Rubidium-81m	1,000
Rubidium-81	1,000
Rubidium-82m	1,000
Rubidium-83	100
Rubidium-84	100
Rubidium-86	100
Rubidium-87	100
Rubidium-88	1,000
Rubidium-89	1,000
Strontium-80	100
Strontium-81	1,000
Strontium-83	100
Strontium-85m	1,000
Strontium-85	100
Strontium-87m	1,000
Strontium-89	10
Strontium-90	0.1
Strontium-91	100
Strontium-92	100
Yttrium-86m	1,000
Yttrium-86	100
Yttrium-87	100
Yttrium-88	10
Yttrium-90m	1,000
Yttrium-90	10
Yttrium-91m	1,000
Yttrium-91	10
Yttrium-92	100
Yttrium-93	100

Yttrium-94	1,000
Yttrium-95	1,000
Zirconium-86	100
Zirconium-88	10
Zirconium-89	100
Zirconium-93	1
Zirconium-95	10
Zirconium-97	100
Niobium-88	1,000
Niobium-89m (66 min)	1,000
Niobium-89 (122 min)	1,000
Niobium-90	100
Niobium-93m	10
Niobium-94	1
Niobium-95m	100
Niobium-95	100
Niobium-96	100
Niobium-97	1,000
Niobium-98	1,000
Molybdenum-90	100
Molybdenum-93m	100
Molybdenum-93	10
Molybdenum-99	100
Molybdenum-101	1,000
Technetium-93m	1,000
Technetium-93	1,000
Technetium-94m	1,000
Technetium-94	1,000
Technetium-96m	1,000

Technetium-96	100
Technetium-97m	100
Technetium-97	1,000
Technetium-98	10
Technetium-99m	1,000
Technetium-99	100
Technetium-101	1,000
Technetium-104	1,000
Ruthenium-94	1,000
Ruthenium-97	1,000
Ruthenium-103	100
Ruthenium-105	1,000
Ruthenium-106	1
Rhodium-99m	1,000
Rhodium-99	100
Rhodium-100	100
Rhodium-101m	1,000
Rhodium-101	10
Rhodium-102m	10
Rhodium-102	10
Rhodium-103m	1,000
Rhodium-105	100
Rhodium-106m	1,000
Rhodium-107	1,000
Palladium-100	100
Palladium-101	1,000
Palladium-103	100
Palladium-107	10
Palladium-109	100

Silver-102	1,000
Silver-103	1,000
Silver-104m	1,000
Silver-104	1,000
Silver-105	100
Silver-106m	100
Silver-106	1,000
Silver-108m	1
Silver-110m	10
Silver-111	100
Silver-112	100
Silver-115	1,000
Cadmium-104	1,000
Cadmium-107	1,000
Cadmium-109	1
Cadmium-113m	0.1
Cadmium-113	100
Cadmium-115m	10
Cadmium-115	100
Cadmium-117m	1,000
Cadmium-117	1,000
Indium-109	1,000
Indium-110 (69.1 min.)	1,000
Indium-110 (4.9 h)	1,000
Indium-111	100
Indium-112	1,000
Indium-113m	1,000
Indium-114m	10
Indium-115m	1,000

Indium-115	100
Indium-116m	1,000
Indium-117m	1,000
Indium-117	1,000
Indium-119m	1,000
Tin-110	100
Tin-111	1,000
Tin-113	100
Tin-117m	100
Tin-119m	100
Tin-121m	100
Tin-121	1,000
Tin-123m	1,000
Tin-123	10
Tin-125	10
Tin-126	10
Tin-127	1,000
Tin-128	1,000
Antimony-115	1,000
Antimony-116m	1,000
Antimony-116	1,000
Antimony-117	1,000
Antimony-118m	1,000
Antimony-119	1,000
Antimony-120 (16 min.)	1,000
Antimony-120 (5.76 d)	100
Antimony-122	100
Antimony-124m	1,000
Antimony-124	10

Antimony-125	100
Antimony-126m	1,000
Antimony-126	100
Antimony-127	100
Antimony-128 (10.4 min.)	1,000
Antimony-128 (9.01 h)	100
Antimony-129	100
Antimony-130	1,000
Antimony-131	1,000
Tellurium-116	1,000
Tellurium-121m	10
Tellurium-121	100
Tellurium-123m	10
Tellurium-123	100
Tellurium-125m	10
Tellurium-127m	10
Tellurium-127	1,000
Tellurium-129m	10
Tellurium-129	1,000
Tellurium-131m	10
Tellurium-131	100
Tellurium-132	10
Tellurium-133m	100
Tellurium-133	1,000
Tellurium-134	1,000
Iodine-120m	1,000
Iodine-120	100
Iodine-121	1,000
Iodine-123	100

Iodine-124	10
Iodine-125	1
Iodine-126	1
Iodine-128	1,000
Iodine-129	1
Iodine-130	10
Iodine-131	1
Iodine-132m	100
Iodine-132	100
Iodine-133	10
Iodine-134	1,000
Iodine-135	100
Xenon-120	1,000
Xenon-121	1,000
Xenon-122	1,000
Xenon-123	1,000
Xenon-125	1,000
Xenon-127	1,000
Xenon-129m	1,000
Xenon-131m	1,000
Xenon-133m	1,000
Xenon-133	1,000
Xenon-135m	1,000
Xenon-135	1,000
Xenon-138	1,000
Cesium-125	1,000
Cesium-127	1,000
Cesium-129	1,000
Cesium-130	1,000

Cesium-131	1,000
Cesium-132	100
Cesium-134m	1,000
Cesium-134	10
Cesium-135m	1,000
Cesium-135	100
Cesium-136	10
Cesium-137	10
Cesium-138	1,000
Barium-126	1,000
Barium-128	100
Barium-131m	1,000
Barium-131	100
Barium-133m	100
Barium-133	100
Barium-135m	100
Barium-139	1,000
Barium-140	100
Barium-141	1,000
Barium-142	1,000
Lanthanum-131	1,000
Lanthanum-132	100
Lanthanum-135	1,000
Lanthanum-137	10
Lanthanum-138	100
Lanthanum-140	100
Lanthanum-141	100
Lanthanum-142	100
Cerium-137m	100

Cerium-137	1,000
Cerium-139	100
Cerium-141	100
Cerium-143	100
Cerium-144	1
Praseodymium-136	1,000
Praseodymium-137	1,000
Praseodymium-138m	1,000
Praseodymium-139	1,000
Praseodymium-142m	1,000
Praseodymium-142	100
Praseodymium-143	100
Praseodymium-144	1,000
Praseodymium-145	100
Praseodymium-147	1,000
Neodymium-136	1,000
Neodymium-138	100
Neodymium-139m	1,000
Neodymium-139	1,000
Neodymium-141	1,000
Neodymium-147	100
Neodymium-149	1,000
Neodymium-151	1,000
Promethium-141	1,000
Promethium-143	100
Promethium-144	10
Promethium-145	10
Promethium-146	1
Promethium-147	10

Promethium-148m	10
Promethium-148	10
Promethium-149	100
Promethium-150	1,000
Promethium-151	100
Samarium-141m	1,000
Samarium-141	1,000
Samarium-142	1,000
Samarium-145	100
Samarium-146	1
Samarium-147	100
Samarium-151	10
Samarium-153	100
Samarium-155	1,000
Samarium-156	1,000
Europium-145	100
Europium-146	100
Europium-147	100
Europium-148	10
Europium-149	100
Europium-150 (12.62 h)	100
Europium-150 (34.2 y)	1
Europium-152m	100
Europium-152	1
Europium-154	1
Europium-155	10
Europium-156	100
Europium-157	.100
Europium-158	1,000

Gadolinium-145	1,000
Gadolinium-146	10
Gadolinium-147	100
Gadolinium-148	0.001
Gadolinium-149	100
Gadolinium-151	10
Gadolinium-152	100
Gadolinium-153	10
Gadolinium-159	100
Terbium-147	1,000
Terbium-149	100
Terbium-150	1,000
Terbium-151	100
Terbium-153	1,000
Terbium-154	100
Terbium-155	1,000
Terbium-156m (5.0 h)	1,000
Terbium-156m (24.4 h)	1,000
Terbium-156	100
Terbium-157	10
Terbium-158	1
Terbium-160	10
Terbium-161	100
Dysprosium-155	1,000
Dysprosium-157	1,000
Dysprosium-159	100
Dysprosium-165	1,000
Dysprosium-166	100
Holmium-155	1,000

Holmium-157	1,000
Holmium-159	1,000
Holmium-161	1,000
Holmium-162m	1,000
Holmium-162	1,000
Holmium-164m	1,000
Holmium-164	1,000
Holmium-166m	1
Holmium-166	100
Holmium-167	1,000
Erbium-161	1,000
Erbium-165	1,000
Erbium-169	100
Erbium-171	100
Erbium-172	100
Thulium-162	1,000
Thulium-166	100
Thulium-167	100
Thulium-170	10
Thulium-171	10
Thulium-172	100
Thulium-173	100
Thulium-175	1,000
Ytterbium-162	1,000
Ytterbium-166	100
Ytterbium-167	1,000
Ytterbium-169	100
Ytterbium-175	100
Ytterbium-177	1,000

Ytterbium-178	1,000
Lutetium-169	100
Lutetium-170	100
Lutetium-171	100
Lutetium-172	100
Lutetium-173	10
Lutetium-174m	10
Lutetium-174	10
Lutetium-176m	1,000
Lutetium-176	100
Lutetium-177m	10
Lutetium-177	100
Lutetium-178m	1,000
Lutetium-178	1,000
Lutetium-179	1,000
Hafnium-170	100
Hafnium-172	1
Hafnium-173	1,000
Hafnium-175	100
Hafnium-177m	1,000
Hafnium-178m	0.1
Hafnium-179m	10
Hafnium-180m	1,000
Hafnium-181	10
Hafnium-182m	1,000
Hafnium-182	0.1
Hafnium-183	1,000
Hafnium-184	100
Tantalum-172	1,000

Tantalum-173	1,000
Tantalum-174	1,000
Tantalum-175	1,000
Tantalum-176	100
Tantalum-177	1,000
Tantalum-178	1,000
Tantalum-179	100
Tantalum-180m	1,000
Tantalum-180	100
Tantalum-182m	1,000
Tantalum-182	10
Tantalum-183	100
Tantalum-184	100
Tantalum-185	1,000
Tantalum-186	1,000
Tungsten-176	1,000
Tungsten-177	1,000
Tungsten-178	1,000
Tungsten-179	1,000
Tungsten-181	1,000
Tungsten-185	100
Tungsten-187	100
Tungsten-188	10
Rhenium-177	1,000
Rhenium-178	1,000
Rhenium-181	1,000
Rhenium-182 (12.7 h)	1,000
Rhenium-182 (64.0 h)	100
Rhenium-183	100

Rhenium-184m	10
Rhenium-184	100
Rhenium-186m	10
Rhenium-186	100
Rhenium-187	1,000
Rhenium-188m	1,000
Rhenium-188	100
Rhenium-189	100
Osmium-180	1,000
Osmium-181	1,000
Osmium-182	100
Osmium-185	100
Osmium-189m	1,000
Osmium-191m	1,000
Osmium-191	100
Osmium-193	100
Osmium-194	1
Iridium-182	1,000
Iridium-184	1,000
Iridium-185	1,000
Iridium-186	100
Iridium-187	1,000
Iridium-188	100
Iridium-189	100
Iridium-190m	1,000
Iridium-190	100
Iridium-192 (73.8 d)	1
Iridium-192m (1.4 min.)	10
Iridium-194m	10

§ N.J.A.C. 7:28-8.10 **Records of dose to individual members of the public.**

(a) Each licensee or registrant shall maintain records sufficient to demonstrate compliance with the dose limit for individual members of the public (see § N.J.A.C. 7:28-6.8).

(b) The licensee shall retain the records required by paragraph (a) of this section until the Department terminates each pertinent license requiring the record.

(c) The registrant shall retain the records required by paragraph (a) of this section until the ionizing radiation producing machine is no longer owned, plus one year.

§ N.J.A.C. 7:28-8.11 **Records of waste disposal.**

(a) Each licensee shall maintain records of the disposal of licensed materials made under §§ N.J.A.C. 7:28-11.7, 11.2, 11.6, 11.9, 59.1 and disposal by burial in soil, including burials authorized before January 28, 1981.[5]

(b) The licensee shall retain the records required by paragraph (a) of this section until the Department terminates each pertinent license requiring the record. Requirements for disposition of these records, prior to license termination, are located in §§ N.J.A.C. 7:28-51.1, 58.1, and 60.1, for activities licensed under these subchapters.

[5] A previous § 10 CFR 20.304 permitted burial of small quantities of licensed materials in soil before January 28, 1981, without specific Commission authorization.

§ N.J.A.C. 7:28-8.12 **Form of records.**

Each record required by this part must be legible throughout the specified retention period. The record may be the original or a reproduced copy or a microform provided that the copy or microform is authenticated by authorized personnel and that the microform is capable of producing a clear copy

throughout the required retention period. The record may also be stored in electronic media with the capability for producing legible, accurate, and complete records during the required retention period. Records, such as letters, drawings, and specifications, must include all pertinent information, such as stamps, initials, and signatures. The licensee or registrant shall maintain adequate safeguards against tampering with and loss of records.

SUBCHAPTER 9. RADIOACTIVE CONTAMINATION CONTROL

§ 7:28-9.1 General precautions

All work with radioactive materials shall be carried out under such conditions as to minimize the radioactive contamination of the area and of the person(s) working therein.

§ 7:28-9.2 Personnel and material contamination

(a) When the nature of the work is such that an individual or his clothing may become contaminated, the individual and his clothing shall be suitably monitored.

(b) Any contamination which might lead to exposures greater than ten per cent of the limits specified in Section 6.1[(a) or (d) (Exposure of individuals in controlled areas)] (Occupational dose limits for adults) of this Chapter shall be removed from the contaminated individual before that individual is permitted to leave the area.

(c) No clothing, equipment, or other material having contamination which might lead to exposures greater than those specified in subsection (b) of this Section shall be permitted to leave the area except as radioactive material.

§ 7:28-9.3 Decontamination of premises

Radioactively contaminated premises shall be decontaminated so that individuals using these premises shall not receive exposures greater than those listed in Section 9.2(b) (Personnel and material contamination) of this Chapter.

§ 7:28-9.4 Sealed source testing

(a) Unless otherwise specified in a [Federal agency] license, [or a State license,] specifically licensed sealed sources except tritium and krypton, [containing more than 10 times the generally licensed quantities of *N.J.A.C. 7:28-4.5(c)* Column B] shall be leak tested at intervals not longer than six months.

(b) Records of all sealed source testing shall be kept in accordance with Section 8.[4]5 (Records of sealed source testing) of this Chapter.

§ 7:28-9.5 Security of stored material.

The licensee shall secure from unauthorized removal or access licensed materials that are stored in controlled or unrestricted areas.

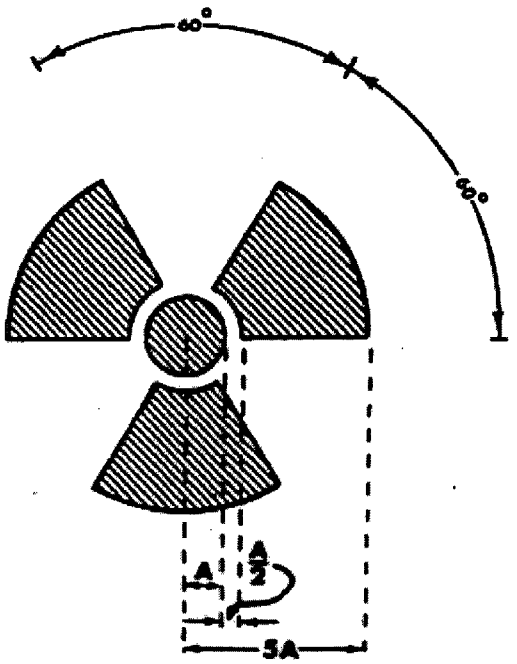
§ 7:28-9.6 Control of material not in storage.

The licensee shall control and maintain constant surveillance of licensed material that is in a controlled or unrestricted area and that is not in storage.

SUBCHAPTER 10. LABELING, POSTING, AND CONTROLS

§ 7:28-10.1 General requirement

(a) All signs and labels required by this Subchapter shall use the conventional radiation caution symbol shaped and colored as follows:



RADIATION SYMBOL

1. Cross-hatched area is to be magenta or purple or black, and[;]

2. Background is to be yellow.

(b) In addition to the language prescribed in the various sections of this Subchapter, any supplementary information which might be appropriate in aiding individuals to minimize exposure to radiation or to radioactive materials may be provided on or near such required signs or labels.

(c) *Exception to color requirements for standard radiation symbol.* Notwithstanding the

requirements of paragraph (a) of this section, licensees are authorized to label sources, source holders, or device components containing sources of licensed materials that are subjected to high temperatures, with conspicuously etched or stamped radiation caution symbols and without a color requirement.

(d) *Additional information on signs and labels.* In addition to the contents of signs and labels prescribed in this part, the licensee may provide, on or near the required signs and labels, additional information, as appropriate, to make individuals aware of potential radiation exposures and to minimize the exposures.

§ 7:28-10.2 Radiation areas

(a) Each radiation area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

1. CAUTION--RADIATION AREA; [or

2. DANGER--RADIATION AREA]

§ 7:28-10.3 High radiation areas

(a) Each high radiation area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

1. CAUTION--HIGH RADIATION AREA; or

2. DANGER--HIGH RADIATION AREA

[(b) Each high radiation area shall be under direct, constant surveillance to protect against unauthorized or accidental entry unless:

1. It is equipped with a control device which shall cause the level of radiation to be reduced below that at which an individual might receive a dose of 100 millirems in one hour upon entry into the area;

2. It is equipped with a control device which shall energize a conspicuous visible or audible alarm signal in such a manner that the individual entering and the owner or the supervisor of the activity are made aware of the entry; or

3. It is locked to protect against unauthorized or accidental entry and the owner or the supervisor of the activity maintains direct personal control over access to the key.]

(b) The licensee or registrant shall ensure that each entrance or access point to a high radiation area has one or more of the following features--

(1) A control device that, upon entry into the area, causes the level of radiation to be reduced below that level at which an individual might receive a deep-dose equivalent of 0.1 rem (1 mSv) in 1 hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates;

(2) A control device that energizes a conspicuous visible or audible alarm signal so that the individual entering the high radiation area and the supervisor of the activity are made aware of the entry; or

(3) Entryways that are locked, except during periods when access to the areas is required, with positive control over each individual entry.

(c) In place of the controls required by paragraph (a) of this section for a high radiation area, the licensee or registrant may substitute continuous direct or electronic surveillance that is capable of preventing unauthorized entry.

(d) A licensee or registrant may apply to the Department for approval of alternative methods for

controlling access to high radiation areas.

(e) The licensee or registrant shall establish the controls required by paragraphs (a) and (c) of this section in a way that does not prevent individuals from leaving a high radiation area.

(f) Control is not required for each entrance or access point to a room or other area that is a high radiation area solely because of the presence of radioactive materials prepared for transport and packaged and labeled in accordance with the regulations of the Department of Transportation provided that--

(1) The packages do not remain in the area longer than 3 days; and

(2) The dose rate at 1 meter from the external surface of any package does not exceed 0.01 rem (0.1 mSv) per hour.

(g) Control of entrance or access to rooms or other areas in hospitals is not required solely because of the presence of patients containing radioactive material, provided that there are personnel in attendance who will take the necessary precautions to prevent the exposure of individuals to radiation or radioactive material in excess of the limits established in this part and to operate within the ALARA provisions of the licensee's radiation protection program.

§ 7:28-10.4 Very high radiation areas

(a) Each very high radiation area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

1. GRAVE DANGER--VERY HIGH RADIATION AREA

(b) In addition to the requirements in § N.J.A.C. 7:28-10.3, the licensee or registrant shall institute additional measures to ensure that an individual is not able to gain unauthorized or inadvertent access to

areas in which radiation levels could be encountered at 500 rads (5 grays) or more in 1 hour at 1 meter from a radiation source or any surface through which the radiation penetrates.

§ 7:28-10.[4]5 Airborne radioactivity areas

(a) Each airborne radioactivity area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words;

1. CAUTION--AIRBORNE RADIOACTIVITY AREA; or

2. DANGER--AIRBORNE RADIOACTIVITY AREA

§ 7:28-10.[5]6 Areas containing radioactive materials

(a) Each area or room in which radioactive material[, other than natural uranium or thorium] is used or stored in an amount greater than ten times that listed in Section 10.[9]12 (Labeling, posting and disposal quantities of radioactive material) of this Chapter shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

1. CAUTION--RADIOACTIVE MATERIAL(S); or

2. DANGER--RADIOACTIVE MATERIAL(S)

[(b) Each area or room in which natural uranium or thorium is used or stored in an amount exceeding 100 times the quantity listed in Section 10.9 (Labeling, posting and disposal quantities of radioactive material) of this Chapter shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

1. CAUTION--RADIOACTIVE MATERIAL(S); or

2. DANGER--RADIOACTIVE MATERIAL(S)]

§ 7:28-10.[6]7 Labeling of equipment and containers

(a) Any equipment or container in which radioactive material[, other than natural uranium or thorium,] is transported, stored, or used, in an amount greater than that specifically listed in Section 10.[9]12 (Labeling, posting and disposal quantities of radioactive material) of this Chapter shall bear a durable, clearly visible label bearing the radiation caution symbol and the words:

1. CAUTION--RADIOACTIVE MATERIAL; or

2. DANGER--RADIOACTIVE MATERIAL

[(b) Each container in which natural uranium or thorium is transported, stored, or used in a quantity greater than 10 times the quantity listed in Section 10.[9]12 (Labeling, posting and disposal quantities of radioactive material) of this Chapter shall bear a durable, clearly visible label bearing the radiation caution symbol and the words:

1. CAUTION--RADIOACTIVE MATERIAL; or

2. DANGER--RADIOACTIVE MATERIAL]

(b) The licensee shall ensure that each container of licensed material bears a durable, clearly visible label bearing the radiation symbol and the words "CAUTION, RADIOACTIVE MATERIAL" or "DANGER, RADIOACTIVE MATERIAL." The label must also provide sufficient information (such as the radionuclide(s) present, an estimate of the quantity of radioactivity, the date for which the activity is estimated, radiation levels, kinds of materials, and mass enrichment) to permit individuals handling or using the containers, or working in the vicinity of the containers, to take precautions to avoid or minimize exposures.

[(c) Where containers are used for storage, the labels required in this Section shall state also the quantities and kinds of radioactive materials in the containers and the date of measurement of the quantities.]

([d]c) All radiation-producing machines capable, when operated, of producing a radiation area shall be labeled in a manner which cautions individuals of this fact.

§ 7:28-10.[7]8 Removal of signs and labels

[All radiation caution signs and labels which may have been posted at a time when they were required shall be removed when the condition which originally required the posting no longer exists.] Each licensee shall, prior to removal or disposal of empty uncontaminated containers to unrestricted areas, remove or deface the radioactive material label or otherwise clearly indicate that the container no longer contains radioactive materials.

§ 7:28-10.[8]9 Exceptions from posting and labeling requirements

(a) Radiation areas and high radiation areas which result from the operation of therapeutic x-ray machines operated at potentials of 60 kv and below or from the operation of diagnostic x-ray machines shall be exempt from the posting requirements of Sections 10.2, 10.3 and 10.6(d) of this Chapter provided that the operator of the equipment has taken precautions to insure that no individual other than the patient shall be in the radiation area.

(b) Rooms or other areas in hospitals are not required to be posted with radiation caution signs because of the presence of patients containing radioactive material provided that [there are personnel in

attendance who shall take the precautions necessary to prevent the exposure of any individual other than the patient to radiation or radioactive material in excess of the limits established in this Chapter] the patient could be released from licensee control pursuant to § N.J.A.C. 7:28-55.1.

(c) A room or area is not required to be posted with a radiation caution sign because of the presence of a sealed source provided the radiation level 12 inches from the surface of the source container or source housing does not exceed five millirems (0.05mSv) per hour.

(d) Radiation caution signs are not required to be posted at areas or rooms containing radioactive materials for periods of less than eight hours provided that:

1. The materials are constantly attended during such periods by an individual who shall take the precautions necessary to prevent the exposure of any other individual to radiation or radioactive materials in excess of the limits established in these regulations; and

2. Such area or room is subject to the [user's] licensee's or registrant's control.

(e) Laboratory containers such as beakers, flasks and test tubes need not be labeled if they are being used transiently in laboratory procedures when the user is present.

[(f) A container in which radioactive material is transported, stored, or used need not be labeled, if the concentration of the material in the container does not exceed that specified in Section 6.5(a) (Average concentrations) of this Chapter, Column A.]

([g]f) Radioactive materials packaged and labeled in accordance with regulations of the appropriate Federal agency shall be exempt from the labeling and posting requirements of this Section during shipment, provided that the inside containers are labeled in accordance with the provisions of Section 10.[6] 7 (Labeling of equipment and containers) of this Chapter.

(g) Rooms in hospitals or clinics that are used for teletherapy are exempt from the requirement to

post caution signs under this Subchapter if--

(1) Access to the room is controlled pursuant to N.J.A.C. 7:28-55.1; and

(2) Personnel in attendance take necessary precautions to prevent the inadvertent exposure of workers, other patients, and members of the public to radiation in excess of the limits established in this part.

§ N.J.A.C. 7:28-10.10 Exemptions to labeling requirements.

A licensee or registrant is not required to label--

(a) Containers holding licensed material in quantities less than the quantities listed in N.J.A.C. 7:28-10.12; or

(b) Containers holding licensed material in concentrations less than those specified in table 2 of the appendix subchapter 11; or

(c) Containers attended by an individual who takes the precautions necessary to prevent the exposure of individuals in excess of the limits established by this part; or

(d) Containers when they are in transport and packaged and labeled in accordance with the regulations of the Department of Transportation,[3] or

(e) Containers that are accessible only to individuals authorized to handle or use them, or to work in the vicinity of the containers, if the contents are identified to these individuals by a readily available written record (examples of containers of this type are containers in locations such as water-filled canals, storage vaults, or hot cells). The record must be retained as long as the containers are in use for the

purpose indicated on the record; or

(f) Installed manufacturing or process equipment, such as reactor components, piping, and tanks.

[3] Labeling of packages containing radioactive materials is required by the Department of Transportation (DOT) if the amount and type of radioactive material exceeds the limits for an excepted quantity or article as defined and limited by DOT regulations 49 CFR 173.403 (m) and (w) and 173.421-424.

§ N.J.A.C. 7:28-10.11 Procedures for receiving and opening packages.

(a) Each licensee who expects to receive a package containing quantities of radioactive material in excess of a Type A quantity, as defined in § N.J.A.C. 7:28-61.1 and appendix A to subchapter 61 of this chapter, shall make arrangements to receive--

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

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

(b) Each licensee shall--

(1) Monitor the external surfaces of a labeled[3a] package for radioactive contamination unless the package contains only radioactive material in the form of a gas or in special form as defined in N.J.A.C. 7:28-61.1;

(2) Monitor the external surfaces of a labeled[3a] package for radiation levels unless the package contains quantities of radioactive material that are less than or equal to the Type A quantity, as defined in § N.J.A.C. 7:28-61.1 and appendix A to subchapter 61 of this chapter; and

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

(c) The licensee shall perform the monitoring required by paragraph (b) of this section as soon as practical after receipt of the package, but not later than 3 hours after the package is received at the licensee's facility if it is received during the licensee's normal working hours, or not later than 3 hours from the beginning of the next working day if it is received after working hours.

(d) The licensee or registrant shall immediately notify the final delivery carrier and the Department's 24 hour Emergency notification (1-888-WARN DEP), by telephone, when--

(1) Removable radioactive surface contamination exceeds the limits of § 61.87(i) of this chapter; or

(2) External radiation levels exceed the limits of § 61.47 of this chapter.

(e) Each licensee or registrant shall--

(1) Establish, maintain, and retain written procedures for safely opening packages in which radioactive material is received; and

(2) Ensure that the procedures are followed and that due consideration is given to special instructions for the type of package being opened.

(f) Licensees transferring special form sources in licensee-owned or licensee-operated vehicles to and from a work site are exempt from the contamination monitoring requirements of paragraph (b) of this section, but are not exempt from the survey requirement in paragraph (b) of this section for measuring radiation levels that is required to ensure that the source is still properly lodged in its shield.

[3a] Labeled with a Radioactive White I, Yellow II, or Yellow III label as specified in U.S. Department of

Transportation regulations, 49 CFR 172.403 and 172.436-440.

§ 7:28-10.[9]12 Quantities of radioactive materials that require labeling and posting

(a) The quantities of radioactive material subject to all labeling and posting regulations in atomic number order are as follows:

Quantities of Licensed or Registered Material Requiring Labeling

(In Atomic Number Order)

Radionuclide	Quantity (uCi)
Hydrogen-3	1,000
Beryllium-7	1,000
Beryllium-10	1
Carbon-11	1,000
Carbon-14	100
Fluorine-18	1,000
Sodium-22	10
Sodium-24	100
Magnesium-28	100
Aluminum-26	10
Silicon-31	1,000
Silicon-32	1
Phosphorus-32	10
Phosphorus-33	100
Sulfur-35	100
Chlorine-36	10

Chlorine-38	1,000
Chlorine-39	1,000
Argon-39	1,000
Argon-41	1,000
Potassium-40	100
Potassium-42	1,000
Potassium-43	1,000
Potassium-44	1,000
Potassium-45	1,000
Calcium-41	100
Calcium-45	100
Calcium-47	100
Scandium-43	1,000
Scandium-44m	100
Scandium-44	100
Scandium-46	10
Scandium-47	100
Scandium-48	100
Scandium-49	1,000
Titanium-44	1
Titanium-45	1,000
Vanadium-47	1,000
Vanadium-48	100
Vanadium-49	1,000
Chromium-48	1,000
Chromium-49	1,000
Chromium-51	1,000
Manganese-51	1,000
Manganese-52m	1,000

Manganese-52	100
Manganese-53	1,000
Manganese-54	100
Manganese-56	1,000
Iron-52	100
Iron-55	100
Iron-59	10
Iron-60	1
Cobalt-55	100
Cobalt-56	10
Cobalt-57	100
Cobalt-58m	1,000
Cobalt-58	100
Cobalt-60m	1,000
Cobalt-60	1
Cobalt-61	1,000
Cobalt-62m	1,000
Nickel-56	100
Nickel-57	100
Nickel-59	100
Nickel-63	100
Nickel-65	1,000
Nickel-66	10
Copper-60	1,000
Copper-61	1,000
Copper-64	1,000
Copper-67	1,000
Zinc-62	100
Zinc-63	1,000

Zinc-65	10
Zinc-69m	100
Zinc-69	1,000
Zinc-71m	1,000
Zinc-72	100
Gallium-65	1,000
Gallium-66	100
Gallium-67	1,000
Gallium-68	1,000
Gallium-70	1,000
Gallium-72	100
Gallium-73	1,000
Germanium-66	1,000
Germanium-67	1,000
Germanium-68	10
Germanium-69	1,000
Germanium-71	1,000
Germanium-75	1,000
Germanium-77	1,000
Germanium-78	1,000
Arsenic-69	1,000
Arsenic-70	1,000
Arsenic-71	100
Arsenic-72	100
Arsenic-73	100
Arsenic-74	100
Arsenic-76	100
Arsenic-77	100
Arsenic-78	1,000

Selenium-70	1,000
Selenium-73m	1,000
Selenium-73	100
Selenium-75	100
Selenium-79	100
Selenium-81m	1,000
Selenium-81	1,000
Selenium-83	1,000
Bromine-74m	1,000
Bromine-74	1,000
Bromine-75	1,000
Bromine-76	100
Bromine-77	1,000
Bromine-80m	1,000
Bromine-80	1,000
Bromine-82	100
Bromine-83	1,000
Bromine-84	1,000
Krypton-74	1,000
Krypton-76	1,000
Krypton-77	1,000
Krypton-79	1,000
Krypton-81	1,000
Krypton-83m	1,000
Krypton-85m	1,000
Krypton-85	1,000
Krypton-87	1,000
Krypton-88	1,000
Rubidium-79	1,000

Rubidium-81m	1,000
Rubidium-81	1,000
Rubidium-82m	1,000
Rubidium-83	100
Rubidium-84	100
Rubidium-86	100
Rubidium-87	100
Rubidium-88	1,000
Rubidium-89	1,000
Strontium-80	100
Strontium-81	1,000
Strontium-83	100
Strontium-85m	1,000
Strontium-85	100
Strontium-87m	1,000
Strontium-89	10
Strontium-90	0.1
Strontium-91	100
Strontium-92	100
Yttrium-86m	1,000
Yttrium-86	100
Yttrium-87	100
Yttrium-88	10
Yttrium-90m	1,000
Yttrium-90	10
Yttrium-91m	1,000
Yttrium-91	10
Yttrium-92	100
Yttrium-93	100

Yttrium-94	1,000
Yttrium-95	1,000
Zirconium-86	100
Zirconium-88	10
Zirconium-89	100
Zirconium-93	1
Zirconium-95	10
Zirconium-97	100
Niobium-88	1,000
Niobium-89m (66 min)	1,000
Niobium-89 (122 min)	1,000
Niobium-90	100
Niobium-93m	10
Niobium-94	1
Niobium-95m	100
Niobium-95	100
Niobium-96	100
Niobium-97	1,000
Niobium-98	1,000
Molybdenum-90	100
Molybdenum-93m	100
Molybdenum-93	10
Molybdenum-99	100
Molybdenum-101	1,000
Technetium-93m	1,000
Technetium-93	1,000
Technetium-94m	1,000
Technetium-94	1,000
Technetium-96m	1,000

Technetium-96	100
Technetium-97m	100
Technetium-97	1,000
Technetium-98	10
Technetium-99m	1,000
Technetium-99	100
Technetium-101	1,000
Technetium-104	1,000
Ruthenium-94	1,000
Ruthenium-97	1,000
Ruthenium-103	100
Ruthenium-105	1,000
Ruthenium-106	1
Rhodium-99m	1,000
Rhodium-99	100
Rhodium-100	100
Rhodium-101m	1,000
Rhodium-101	10
Rhodium-102m	10
Rhodium-102	10
Rhodium-103m	1,000
Rhodium-105	100
Rhodium-106m	1,000
Rhodium-107	1,000
Palladium-100	100
Palladium-101	1,000
Palladium-103	100
Palladium-107	10
Palladium-109	100

Silver-102	1,000
Silver-103	1,000
Silver-104m	1,000
Silver-104	1,000
Silver-105	100
Silver-106m	100
Silver-106	1,000
Silver-108m	1
Silver-110m	10
Silver-111	100
Silver-112	100
Silver-115	1,000
Cadmium-104	1,000
Cadmium-107	1,000
Cadmium-109	1
Cadmium-113m	0.1
Cadmium-113	100
Cadmium-115m	10
Cadmium-115	100
Cadmium-117m	1,000
Cadmium-117	1,000
Indium-109	1,000
Indium-110 (69.1 min.)	1,000
Indium-110 (4.9 h)	1,000
Indium-111	100
Indium-112	1,000
Indium-113m	1,000
Indium-114m	10
Indium-115m	1,000

Indium-115	100
Indium-116m	1,000
Indium-117m	1,000
Indium-117	1,000
Indium-119m	1,000
Tin-110	100
Tin-111	1,000
Tin-113	100
Tin-117m	100
Tin-119m	100
Tin-121m	100
Tin-121	1,000
Tin-123m	1,000
Tin-123	10
Tin-125	10
Tin-126	10
Tin-127	1,000
Tin-128	1,000
Antimony-115	1,000
Antimony-116m	1,000
Antimony-116	1,000
Antimony-117	1,000
Antimony-118m	1,000
Antimony-119	1,000
Antimony-120 (16 min.)	1,000
Antimony-120 (5.76 d)	100
Antimony-122	100
Antimony-124m	1,000
Antimony-124	10

Antimony-125	100
Antimony-126m	1,000
Antimony-126	100
Antimony-127	100
Antimony-128 (10.4 min.)	1,000
Antimony-128 (9.01 h)	100
Antimony-129	100
Antimony-130	1,000
Antimony-131	1,000
Tellurium-116	1,000
Tellurium-121m	10
Tellurium-121	100
Tellurium-123m	10
Tellurium-123	100
Tellurium-125m	10
Tellurium-127m	10
Tellurium-127	1,000
Tellurium-129m	10
Tellurium-129	1,000
Tellurium-131m	10
Tellurium-131	100
Tellurium-132	10
Tellurium-133m	100
Tellurium-133	1,000
Tellurium-134	1,000
Iodine-120m	1,000
Iodine-120	100
Iodine-121	1,000
Iodine-123	100

Iodine-124	10
Iodine-125	1
Iodine-126	1
Iodine-128	1,000
Iodine-129	1
Iodine-130	10
Iodine-131	1
Iodine-132m	100
Iodine-132	100
Iodine-133	10
Iodine-134	1,000
Iodine-135	100
Xenon-120	1,000
Xenon-121	1,000
Xenon-122	1,000
Xenon-123	1,000
Xenon-125	1,000
Xenon-127	1,000
Xenon-129m	1,000
Xenon-131m	1,000
Xenon-133m	1,000
Xenon-133	1,000
Xenon-135m	1,000
Xenon-135	1,000
Xenon-138	1,000
Cesium-125	1,000
Cesium-127	1,000
Cesium-129	1,000
Cesium-130	1,000

Cesium-131	1,000
Cesium-132	100
Cesium-134m	1,000
Cesium-134	10
Cesium-135m	1,000
Cesium-135	100
Cesium-136	10
Cesium-137	10
Cesium-138	1,000
Barium-126	1,000
Barium-128	100
Barium-131m	1,000
Barium-131	100
Barium-133m	100
Barium-133	100
Barium-135m	100
Barium-139	1,000
Barium-140	100
Barium-141	1,000
Barium-142	1,000
Lanthanum-131	1,000
Lanthanum-132	100
Lanthanum-135	1,000
Lanthanum-137	10
Lanthanum-138	100
Lanthanum-140	100
Lanthanum-141	100
Lanthanum-142	100
Cerium-137m	100

Cerium-137	1,000
Cerium-139	100
Cerium-141	100
Cerium-143	100
Cerium-144	1
Praseodymium-136	1,000
Praseodymium-137	1,000
Praseodymium-138m	1,000
Praseodymium-139	1,000
Praseodymium-142m	1,000
Praseodymium-142	100
Praseodymium-143	100
Praseodymium-144	1,000
Praseodymium-145	100
Praseodymium-147	1,000
Neodymium-136	1,000
Neodymium-138	100
Neodymium-139m	1,000
Neodymium-139	1,000
Neodymium-141	1,000
Neodymium-147	100
Neodymium-149	1,000
Neodymium-151	1,000
Promethium-141	1,000
Promethium-143	100
Promethium-144	10
Promethium-145	10
Promethium-146	1
Promethium-147	10

Promethium-148m	10
Promethium-148	10
Promethium-149	100
Promethium-150	1,000
Promethium-151	100
Samarium-141m	1,000
Samarium-141	1,000
Samarium-142	1,000
Samarium-145	100
Samarium-146	1
Samarium-147	100
Samarium-151	10
Samarium-153	100
Samarium-155	1,000
Samarium-156	1,000
Europium-145	100
Europium-146	100
Europium-147	100
Europium-148	10
Europium-149	100
Europium-150 (12.62 h)	100
Europium-150 (34.2 y)	1
Europium-152m	100
Europium-152	1
Europium-154	1
Europium-155	10
Europium-156	100
Europium-157	.100
Europium-158	1,000

Gadolinium-145	1,000
Gadolinium-146	10
Gadolinium-147	100
Gadolinium-148	0.001
Gadolinium-149	100
Gadolinium-151	10
Gadolinium-152	100
Gadolinium-153	10
Gadolinium-159	100
Terbium-147	1,000
Terbium-149	100
Terbium-150	1,000
Terbium-151	100
Terbium-153	1,000
Terbium-154	100
Terbium-155	1,000
Terbium-156m (5.0 h)	1,000
Terbium-156m (24.4 h)	1,000
Terbium-156	100
Terbium-157	10
Terbium-158	1
Terbium-160	10
Terbium-161	100
Dysprosium-155	1,000
Dysprosium-157	1,000
Dysprosium-159	100
Dysprosium-165	1,000
Dysprosium-166	100
Holmium-155	1,000

Holmium-157	1,000
Holmium-159	1,000
Holmium-161	1,000
Holmium-162m	1,000
Holmium-162	1,000
Holmium-164m	1,000
Holmium-164	1,000
Holmium-166m	1
Holmium-166	100
Holmium-167	1,000
Erbium-161	1,000
Erbium-165	1,000
Erbium-169	100
Erbium-171	100
Erbium-172	100
Thulium-162	1,000
Thulium-166	100
Thulium-167	100
Thulium-170	10
Thulium-171	10
Thulium-172	100
Thulium-173	100
Thulium-175	1,000
Ytterbium-162	1,000
Ytterbium-166	100
Ytterbium-167	1,000
Ytterbium-169	100
Ytterbium-175	100
Ytterbium-177	1,000

Ytterbium-178	1,000
Lutetium-169	100
Lutetium-170	100
Lutetium-171	100
Lutetium-172	100
Lutetium-173	10
Lutetium-174m	10
Lutetium-174	10
Lutetium-176m	1,000
Lutetium-176	100
Lutetium-177m	10
Lutetium-177	100
Lutetium-178m	1,000
Lutetium-178	1,000
Lutetium-179	1,000
Hafnium-170	100
Hafnium-172	1
Hafnium-173	1,000
Hafnium-175	100
Hafnium-177m	1,000
Hafnium-178m	0.1
Hafnium-179m	10
Hafnium-180m	1,000
Hafnium-181	10
Hafnium-182m	1,000
Hafnium-182	0.1
Hafnium-183	1,000
Hafnium-184	100
Tantalum-172	1,000

Tantalum-173	1,000
Tantalum-174	1,000
Tantalum-175	1,000
Tantalum-176	100
Tantalum-177	1,000
Tantalum-178	1,000
Tantalum-179	100
Tantalum-180m	1,000
Tantalum-180	100
Tantalum-182m	1,000
Tantalum-182	10
Tantalum-183	100
Tantalum-184	100
Tantalum-185	1,000
Tantalum-186	1,000
Tungsten-176	1,000
Tungsten-177	1,000
Tungsten-178	1,000
Tungsten-179	1,000
Tungsten-181	1,000
Tungsten-185	100
Tungsten-187	100
Tungsten-188	10
Rhenium-177	1,000
Rhenium-178	1,000
Rhenium-181	1,000
Rhenium-182 (12.7 h)	1,000
Rhenium-182 (64.0 h)	100
Rhenium-183	100

Rhenium-184m	10
Rhenium-184	100
Rhenium-186m	10
Rhenium-186	100
Rhenium-187	1,000
Rhenium-188m	1,000
Rhenium-188	100
Rhenium-189	100
Osmium-180	1,000
Osmium-181	1,000
Osmium-182	100
Osmium-185	100
Osmium-189m	1,000
Osmium-191m	1,000
Osmium-191	100
Osmium-193	100
Osmium-194	1
Iridium-182	1,000
Iridium-184	1,000
Iridium-185	1,000
Iridium-186	100
Iridium-187	1,000
Iridium-188	100
Iridium-189	100
Iridium-190m	1,000
Iridium-190	100
Iridium-192 (73.8 d)	1
Iridium-192m (1.4 min.)	10
Iridium-194m	10

Iridium-194	100
Iridium-195m	1,000
Iridium-195	1,000
Platinum-186	1,000
Platinum-188	100
Platinum-189	1,000
Platinum-191	100
Platinum-193m	100
Platinum-193	1,000
Platinum-195m	100
Platinum-197m	1,000
Platinum-197	100
Platinum-199	1,000
Platinum-200	100
Gold-193	1,000
Gold-194	100
Gold-195	10
Gold-198m	100
Gold-198	100
Gold-199	100
Gold-200m	100
Gold-200	1,000
Gold-201	1,000
Mercury-193m	100
Mercury-193	1,000
Mercury-194	1
Mercury-195m	100
Mercury-195	1,000
Mercury-197m	100

Mercury-197	1,000
Mercury-199m	1,000
Mercury-203	100
Thallium-194m	1,000
Thallium-194	1,000
Thallium-195	1,000
Thallium-197	1,000
Thallium-198m	1,000
Thallium-198	1,000
Thallium-199	1,000
Thallium-200	1,000
Thallium-201	1,000
Thallium-202	100
Thallium-204	100
Lead-195m	1,000
Lead-198	1,000
Lead-199	1,000
Lead-200	100
Lead-201	1,000
Lead-202m	1,000
Lead-202	10
Lead-203	1,000
Lead-205	100
Lead-209	1,000
Lead-210	0.01
Lead-211	100
Lead-212	1
Lead-214	100
Bismuth-200	1,000

Bismuth-201	1,000
Bismuth-202	1,000
Bismuth-203	100
Bismuth-205	100
Bismuth-206	100
Bismuth-207	10
Bismuth-210m	0.1
Bismuth-210	1
Bismuth-212	10
Bismuth-213	10
Bismuth-214	100
Polonium-203	1,000
Polonium-205	1,000
Polonium-207	1,000
Polonium-210	0.1
Astatine-207	100
Astatine-211	10
Radon-220	1
Radon-222	1
Francium-222	100
Francium-223	100
Radium-223	0.1
Radium-224	0.1
Radium-225	0.1
Radium-226	0.1
Radium-227	1,000
Radium-228	0.1
Actinium-224	1
Actinium-225	0.01

Actinium-226	0.1
Actinium-227	0.001
Actinium-228	1
Thorium-226	10
Thorium-227	0.01
Thorium-228	0.001
Thorium-229	0.001
Thorium-230	0.001
Thorium-231	100
[*] Thorium-232	.100
Thorium-234	10
[*]Thorium-natural	100
Protactinium-227	10
Protactinium-228	1
Protactinium-230	0.1
Protactinium-231	0.001
Protactinium-232	1
Protactinium-233	100
Protactinium-234	100
Uranium-230	0.01
Uranium-231	100
Uranium-232	0.001
Uranium-233	0.001
[*] Uranium-234	0.001
[*] Uranium-235	0.001
Uranium-236	0.001
Uranium-237	100
[*]Uranium-238	100
Uranium-239	1,000

Uranium-240	100
[*]Uranium-natural	100
Neptunium-232	100
Neptunium-233	1,000
Neptunium-234	100
Neptunium-235	100
Neptunium-236 (1.15 x 10 n5 y)	0.001
Neptunium-236 (22.5 h)	1
Neptunium-237	0.001
Neptunium-238	10
Neptunium-239	100
Neptunium-240	1,000
Plutonium-234	10
Plutonium-235	1,000
Plutonium-236	0.001
Plutonium-237	100
Plutonium-238	0.001
Plutonium-239	0.001
Plutonium-240	0.001
Plutonium-241	0.01
Plutonium-242	0.001
Plutonium-243	1,000
Plutonium-244	0.001
Plutonium-245	100
Americium-237	1,000
Americium-238	100
Americium-239	1,000
Americium-240	100
Americium-241	0.001

Americium-242m	0.001
Americium-242	10
Americium-243	0.001
Americium-244m	100
Americium-244	10
Americium-245	1,000
Americium-246m	1,000
Americium-246	1,000
Curium-238	100
Curium-240	0.1
Curium-241	1
Curium-242	0.01
Curium-243	0.001
Curium-244	0.001
Curium-245	0.001
Curium-246	0.001
Curium-247	0.001
Curium-248	0.001
Curium-249	1,000
Berkelium-245	100
Berkelium-246	100
Berkelium-247	0.001
Berkelium-249	0.1
Berkelium-250	10
Californium-244	100
Californium-246	1
Californium-248	0.01
Californium-249	0.001
Californium-250	0.001

Californium-251	0.001
Californium-252	0.001
Californium-253	0.1
Californium-254	0.001
Einsteinium-250	100
Einsteinium-251	100
Einsteinium-253	0.1
Einsteinium-254m	1
Einsteinium-254	0.01
Fermium-252	1
Fermium-253	1
Fermium-254	10
Fermium-255	1
Fermium-257	0.01
Mendelevium-257	10
Mendelevium-258	0.01
Any alpha emitting radionuclide not listed above or mixtures of alpha emitters of unknown composition	0.001
Any radionuclide other than alpha emitting radionuclides not listed above, or mixtures of beta emitters of unknown composition	0.01

[*These quantities do not apply to source materials as defined by the NRC for thorium and uranium.]

The value for Re-183 is actually taken from Re-186. The value for Re-183 could not be calculated due to the fact that Re-183 is not listed in 10 CFR 20, Appendix B.

(b) For purposes of N.J.A.C. 7:28-10.[5]6 and 10.[6]7, where there is involved a combination of radionuclides in known amounts, the limit for the combination shall be derived as follows: determine, for each radionuclide in the combination, the ratio between the quantity present in the combination and

the limit otherwise established for the specific radionuclide when not in combination. The sum of such ratios for all radionuclides in the combination may not exceed "1" (that is, "unity").

SUBCHAPTER 11. DISPOSAL OF RADIOACTIVE MATERIALS

§ 7:28-11.1 General requirements

[The disposal of radioactive materials is permitted only to the extent and under the conditions specified in Sections 11.2 through 11.7 of this Chapter.]

(a) A licensee shall dispose of licensed material only--

(1) By transfer to an authorized recipient as provided in § N.J.A.C. 7:28-11.10 or in the regulations in N.J.A.C. 51.1, 58.1, 59.1, and 60.1 of this chapter;

(2) By decay in storage; or

(3) By release in effluents within the limits in § N.J.A.C. 7:28-6.8; or

(4) As authorized under §§ N.J.A.C. 7:28-11.2, 11.6, 11.7, or 11.9

(b) A person must be specifically licensed to receive waste containing licensed material from other persons for:

(1) Treatment prior to disposal; or

(2) Treatment or disposal by incineration; or

(3) Decay in storage; or

(4) Disposal at a land disposal facility licensed under § N.J.A.C. 7:28-59.1; or

(5) Disposal at a geologic repository under §§10 CFR Part 60 or Part 63.

§ 7:28-11.2 Disposal by release into [sanitary sewer systems] domestic treatment works

(a) A [State] licensee may discharge [State] licensed [or other radioactive] material into a [sanitary sewer system] domestic treatment works if each of the following conditions is satisfied:

1. The material is readily soluble (or is readily dispersible biological material) in water; and

2. The quantity of [State] licensed or other radioactive material that the [State] licensee releases into the sewer in one month divided by the average monthly volume of water released into the sewer by the [State] licensee does not exceed the concentration listed in [the Appendix, Table 2 of this subchapter]Table 3 of Appendix B to 10 CFR Part 20, incorporated herein by reference;

3. If more than one radionuclide is released, the following conditions must also be satisfied:

i. The [State] licensee shall determine the fraction of the limit in [the Appendix, Table 2 of this subchapter] Table 3 of Appendix B to 10 CFR Part 20, incorporated herein by reference, represented by discharges into [sanitary sewerage] domestic treatment works by dividing the actual monthly average concentration of each radionuclide released by the [State] licensee into the sewer by the concentration of that radionuclide listed in [the Appendix, Table 2 of this subchapter] Table 3 of Appendix B to 10 CFR Part 20, incorporated herein by reference; and

ii. The sum of the fractions for each radionuclide required by (a)3i above does not exceed unity; and

4. The total quantity of [State] licensed and other radioactive material[, excluding tritium and carbon-14,] that the [State] licensee releases into the [sanitary sewerage system] domestic treatment works in a year does not exceed 5 curies (185 GBq) of hydrogen-3, 5 curies (185 GBq) of carbon-14, and one [C]curie (37 GBq) of all other radioactive materials combined.

(b) Excreta from individuals undergoing medical diagnosis or therapy with radioactive material are not subject to the limitations contained in (a) above.

§ 7:28-11.3 Disposal by discharges into the air, ground waters or surface waters

(a) A [State] licensee may dispose of [State] licensed or any other radioactive material into the air outside a controlled area provided the concentration at the point where the [State] licensed or any other radioactive material leaves the controlled area is not in excess of the concentrations specified in [the Appendix of this subchapter, Table 1, Column 1]Table 2, Column 1 of Appendix B to 10 CFR Part 20, incorporated herein by reference, or prorated values if more than one isotope is discharged. Where the [State] licensed or any other radioactive material is discharged through a stack, tube pipe, or similar conduit, the determination may be made with respect to the point where the [State] licensed or any other radioactive material leaves such a conduit. For purposes of this subsection, concentrations may be averaged over periods not greater than one year.

(b) No [State] licensee shall dispose of [State] licensed or any other radioactive material into surface waters or into ground waters without specific, prior permission in writing, in the form of a New Jersey Pollutant Discharge Elimination System permit, from the Department.

§ 7:28-11.4 Disposal by burial in the soil

(a) No owner or licensee shall dispose of radioactive material by burial in the soil without prior approval in writing from the Department.

(b) Sites that have been used for burial of radioactive materials shall not be converted to other uses except with the written permission of the Department.

(c) The owner of any burial ground shall notify the Department in writing not less than 30 days in advance of any transfer of title to the property involved.

§ 7:28-11.5 Disposal by transfer to a radioisotope disposal service

(a) An owner or licensee may dispose of radioactive materials by transfer to a radioisotope disposal service providing this service has been approved by the Department to receive such materials.

(b) An owner or licensee may dispose of radioactive materials by transfer to a person who is authorized to receive such material under a license issued by the Department, a Federal agency, or any agreement state.

§ 7:28-11.6 Treatment or [D]disposal by incineration

[No owner shall incinerate radioactive materials for the purpose of disposal or preparation for disposal except as specifically approved by the Department in writing.]

(a) A licensee may treat or dispose of licensed material by incineration only:

(1) As authorized by paragraph (b) of this section; or

(2) If the material is in a form and concentration specified in §N.J.A.C. 7:28-11.9; or

(3) As specifically approved by the Commission pursuant to § N.J.A.C. 7:28-11.7.

(b) (1) Waste oils (petroleum derived or synthetic oils used principally as lubricants, coolants, hydraulic or insulating fluids, or metalworking oils) that have been radioactively contaminated in the course of the operation or maintenance of a nuclear power reactor licensed under 10 CFR Part 50 may be incinerated

on the site where generated provided that the total radioactive effluents from the facility, including the effluents from such incineration, conform to the requirements of appendix I to 10 CFR Part 50 and the effluent release limits contained in applicable license conditions other than effluent limits specifically related to incineration of waste oil. The licensee shall report any changes or additions to the information supplied under §§ 10 CFR 50.34 and 50.34a associated with this incineration pursuant to § 10 CFR 50.71, as appropriate. The licensee shall also follow the procedures of § 10 CFR 50.59 with respect to such changes to the facility or procedures.

(2) Solid residues produced in the process of incinerating waste oils must be disposed of as provided by § N.J.A.C. 7:28-11.1.

(3) The provisions of this section authorize onsite waste oil incineration under the terms of this section and supersede any provision in an individual plant license or technical specification that may be inconsistent.

§ 7:28-11.7 [Disposal by a specially approved method

(a) Any person may apply to the Department for approval of proposed procedure to dispose of radioactive material in a manner not otherwise authorized in this Subchapter.

(b) Each application shall include a description of the radioactive material, including the quantities and kinds of radioactive material and the levels of radioactivity involved, and the proposed manner and conditions of disposal.

(c) The application, where appropriate, shall also include an analysis and evaluation of pertinent information as to the nature of the environment, including topographical, geological, meteorological, and hydrological characteristics; usage of ground and surface waters in the general area; the nature and

location of other potentially affected facilities; and procedures to be observed to minimize the risk of unexpected or hazardous exposures.]

Method for obtaining approval of proposed disposal procedures.

A licensee or applicant for a license may apply to the Department for approval of proposed procedures, not otherwise authorized in the regulations in this chapter, to dispose of licensed material generated in the licensee's activities. Each application shall include:

(a) A description of the waste containing licensed material to be disposed of, including the physical and chemical properties important to risk evaluation, and the proposed manner and conditions of waste disposal; and

(b) An analysis and evaluation of pertinent information on the nature of the environment; and

(c) The nature and location of other potentially affected licensed and unlicensed facilities; and

(d) Analyses and procedures to ensure that doses are maintained ALARA and within the dose limits in this chapter.

§ 7:28-11.8 Unauthorized removal

Sources of radiation shall be secured against unauthorized removal from the place of storage.

§ 7:28-11.9 Disposal of specific wastes.

(a) A licensee may dispose of the following licensed material as if it were not radioactive:

(1) 0.05 microcurie (1.85 kBq), or less, of hydrogen-3 or carbon-14 per gram of medium used for liquid

scintillation counting; and

(2) 0.05 microcurie (1.85 kBq), or less, of hydrogen-3 or carbon-14 per gram of animal tissue, averaged over the weight of the entire animal.

(b) A licensee may not dispose of tissue under paragraph (a)(2) of this section in a manner that would permit its use either as food for humans or as animal feed.

(c) The licensee shall maintain records in accordance with N.J.A.C. 7:28-8.11.

§ 7:28-11.10 Transfer for disposal and manifests.

(a) The requirements of this section and appendix G to 10 CFR Part 20, herein incorporated by reference, are designed to--

(1) Control transfers of low-level radioactive waste by any waste generator, waste collector, or waste processor licensee, as defined in this part, who ships low-level waste either directly, or indirectly through a waste collector or waste processor, to a licensed low-level waste land disposal facility (as defined in subchapter 59 of this chapter);

(2) Establish a manifest tracking system; and

(3) Supplement existing requirements concerning transfers and recordkeeping for those wastes.

(b) Any licensee shipping radioactive waste intended for ultimate disposal at a licensed land disposal facility must document the information required on NRC's Uniform Low-Level Radioactive Waste Manifest and transfer this recorded manifest information to the intended consignee in accordance with appendix G to 10 CFR Part 20, incorporated herein by reference.

(c) Each shipment manifest must include a certification by the waste generator as specified in section II of appendix G to 10 CFR Part 20, incorporated herein by reference.

(d) Each person involved in the transfer for disposal and disposal of waste, including the waste generator, waste collector, waste processor, and disposal facility operator, shall comply with the requirements specified in section III of appendix G to 10 CFR Part 20, incorporated herein by reference.

§ 7:28-11.11 Compliance with environmental and health protection regulations.

Nothing in this subchapter relieves the licensee from complying with other applicable Federal, State, and local regulations governing any other toxic or hazardous properties of materials that may be disposed of under this subchapter.

SUBCHAPTER 12. REMEDIATION STANDARDS FOR RADIOACTIVE MATERIALS

§ 7:28-12.1 Purpose and scope

The purpose of this subchapter is to establish minimum standards for the remediation of real property contaminated by radioactive materials. This subchapter also provides direction on remediating a site contaminated with radioactive materials with regard to sampling, surveying, and laboratory requirements, remedial action selection, and remedial action requirements.

§ 7:28-12.2 Applicability

(a) The standards and/or dose criteria in this subchapter are applicable to:

1. Remediation of radioactive contamination of real property by any technologically enhanced naturally occurring radioactive materials, source, by-product, certain special nuclear material, and accelerator-produced radionuclides; and

[2. Remediation of radioactive contamination of real property by accelerator-produced radionuclides; and

3] 2. Any other remediation of radioactive contamination including, without limitation, any remediation pursuant to: the Spill Compensation and Control Act, *N.J.S.A. 58:10-23.11* et seq.; the Water Pollution Control Act, *N.J.S.A. 58:10A-1* et seq.; the Industrial Site

Recovery Act, *N.J.S.A. 13:1K-6* et seq.; the Solid Waste Management Act, *N.J.S.A. 13:1E-1* et seq.; the Comprehensive Regulated Medical Waste Management Act, *N.J.S.A. 13:1E-48.1* et seq.; the Major Hazardous Waste Facilities Siting Act, *N.J.S.A. 13:1E-49* et seq.; the Sanitary Landfill Facility Closure and Contingency Fund Act, *N.J.S.A. 13:1E-100* et seq.; the Regional Low Level Radioactive Waste Disposal Facility Siting Act, *N.J.S.A. 13:1E-177* et seq.; any law or regulation by which the State may compel a person or licensee to perform remediation activities; or *N.J.A.C. 7:26C.*

(b) The standards in this subchapter are not applicable to:

1. Materials containing naturally occurring radionuclides whose concentrations have not been technologically enhanced; or

2. Coal ash that has been or is being used in:

i. The manufacture of construction materials including, but not limited to, cinder blocks, concrete products and roofing materials;

ii. Road construction materials including, but not limited to, asphalt filler or road base material; or

iii. Landfill cover.

(c) The Department shall apply the radiation [soil] remediation standards and dose criteria in this chapter at applicable sites as "Applicable or Relevant and Appropriate Requirements" as defined in the Comprehensive Environmental Response, Compensation and Liability Act, *42 U.S.C. § § 9601* et seq.

§ 7:28-12.3 Definitions

The following words and terms, when used in this subchapter, shall have the following meanings, unless the context clearly indicates otherwise:

"Appropriate period of time" means the length of time [required for the radionuclide to decay seven half-lives] determined by the Department, taking into consideration the radioactive half-life, total activity, concentration, and physical condition of the residual radioactivity, geologic stability of the area, and current and projected future demographics.

"Committed dose equivalent" means the total dose equivalent averaged throughout any body tissue in the 50 years after intake of a radionuclide into the body.

"Committed effective dose equivalent" means the sum of the products of the committed dose equivalents to individual tissues resulting from an intake of a radionuclide multiplied by the appropriate weighting factor (W_T) indicated below:

Organ or Tissue	W_T
Gonads	0.25
Breast	0.15
Red bone marrow	0.12
Lung	0.12
Thyroid	0.03
Bone Surfaces	0.03
Remainder	0.30*
Whole Body (external)	1.00

*0.30 results from 0.06 for each of five "remainder" organs (excluding the skin and the lens of the eye) that receive the highest doses.

"Contaminated site" means a site as defined pursuant to the Technical Requirements for Site Remediation rules at N.J.A.C. 7:26E-1.8.

"Deep-dose equivalent" means, applied to external whole-body exposure, the dose equivalent at a tissue depth of one centimeter.

"Derived concentration guideline level" means the radionuclide-specific activity concentration corresponding to the release criterion.

"Design features" means those features of a remediation that do not rely on additional expenditures after installation to achieve their intended purpose.

"Dose equivalent" means the product of the absorbed dose (D), the quality factor (Q), and other modifying factors (N). For purposes of this definition, N = 1.

"Engineering controls" means any physical mechanism to contain or stabilize contamination or ensure the effectiveness of a remedial action. Engineering controls under this subchapter may include, without limitation, caps, covers, dikes, trenches, leachate collection systems, radon remediation systems, signs, fences [and] physical access controls, ground water monitoring systems and ground water containment systems including, without limitation, slurry walls and ground water pumping systems.

"Final status survey" is a survey or analysis, performed after remediation, which provides data that demonstrates that all radiological parameters satisfy the remediation standards.

"Institutional controls" means a mechanism [used to limit human activities at or near a contaminated site, or to ensure the effectiveness of the remedial action over time, when contaminants remain at a site in levels or concentrations above the applicable remediation standard that would allow unrestricted use of that property. Institutional controls under this subchapter may include, without limitation, structure, land and natural resource use restrictions, well restriction areas, classification exception areas, deed notices, and declarations of environmental restrictions] as defined pursuant to the Technical Requirements

for Site Remediation rules at N.J.A.C. 7:26E-1.8.

"Intake dose" means the annual radiation dose to a person from all potential intake pathways (exclusive of radon inhalation), including the ingestion of water, direct ingestion of soil, intake of foods, and the inhalation of resuspended particulate matter (in committed effective dose equivalent).

"Limited restricted-use remedial action" means any remedial action that requires the continued use of institutional controls but does not require the use of an engineering control.

"Natural background radionuclide concentration" means the average value of a particular radionuclide concentration in soils measured in areas in the vicinity of the site, in an area that has not been influenced by localized human activities, including the site's prior or current operations.

"Quality factor" means the factor by which absorbed doses are multiplied to obtain a quantity that expresses the effectiveness of the absorbed dose on a common scale for all types of ionizing radiation.

"Radioactive contamination or radioactive contaminant" means the collective amount of radiation emitted from one or more radionuclides in the soil, on/in building materials, and/or equipment at concentrations above natural background levels.

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

"Radionuclide" means a type of atom that spontaneously undergoes radioactive decay.

"Regional natural background variation" means the best Department estimate, based on available data, of a region's naturally experienced variation in radiation dose from mean levels that are commonly and consistently experienced by persons in the State.

"Remedial action" means those actions taken at a site[, or offsite if a radioactive contaminant has migrated or is migrating there from a radioactively contaminated site as may be required by the Department, including, without limitation, removal, treatment, containment, transportation, securing, or other engineering or treatment measures, whether to an unrestricted use or otherwise, designed to ensure that any discharged radioactive contaminant at the site, or that has migrated or is migrating from the site, is remediated in compliance with the applicable remediation standards in this subchapter]as defined pursuant to the Technical Requirements for Site Remediation rules at N.J.A.C. 7:26E-1.8.

"Remediation" or "remediate" means all necessary actions [to investigate and cleanup or respond to any known, suspected, or threatened discharge of radioactive contaminants, including, as necessary, the preliminary assessment, site investigation, remedial investigation, and remedial action] as defined pursuant to the Technical Requirements for Site Remediation rules at N.J.A.C. 7:26E-1.8.

"Remediation standards" means the combination of numeric standards that establish a level or concentration, and narrative standards, to which radioactive contaminants must be treated, removed or otherwise cleaned for soil, ground water or surface water, as [provided]established by the Department pursuant to *N.J.S.A. 58:10B-12* and this chapter[, in order to meet the health risk or environmental standards].

["Residual radionuclides" means the concentration of radionuclides remaining after the remediation is successfully completed, excluding background.] "Residual radioactivity" means radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee's or person responsible for the remediation's control. This includes radioactivity from all licensed and unlicensed sources used by the

licensee or person responsible for the remediation, but excludes background radiation. It also includes radioactive materials remaining at the site as a result of routine or accidental releases of radioactive material at the site and previous burials at the site, even if those burials were made in accordance with the provisions of US NRC regulations at Title 10 CFR part 20.

"Restricted use remedial action" means any remedial action that requires the continued use of engineering and institutional controls in order to meet the established health risk or environmental standards.

"Technologically enhanced naturally occurring radioactive materials" means any naturally occurring radioactive materials whose radionuclide concentrations or potential for human exposure have been increased by any human activities.

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

"Uncontaminated surface soil" means soil whose average natural background radionuclide total concentrations are less than the [limits for residual]remediation standards for radionuclides, and cannot exceed the background established for the site by more than two standard deviations.

"Unrestricted use remedial action" means any remedial action [that does not require the continued use of engineering or institutional controls in order to meet the established standards] as defined pursuant to the Technical Requirements for Site Remediation rules at N.J.A.C. 7:26E-1.8.

"Vertical extent" means the average depth, measured in feet, of the post-remediation radioactive contamination over an affected area.

§ 7:28-12.4 General requirements

(a) Any person or licensee conducting remediation pursuant to this subchapter shall comply with the requirements of *N.J.A.C. 7:26E*, Technical Requirements for Site Remediation, excluding those sections related to sampling, surveying, and background investigations. Sampling, surveying and laboratory requirements shall be in accordance with *N.J.A.C. 7:28-12.5*.

(b) Compliance with this subchapter shall not relieve any person or licensee from complying with more stringent cleanup standards or provisions imposed by any other applicable statute, rule or regulation.

(c) Upon Departmental approval of the remedial action workplan or similar plan, the department may not subsequently require a change to that workplan or similar plan in order to compel a different remediation standard due to the fact that the established remediation standards have changed; however, the department may compel a different remediation standard if the difference between the new remediation standard and the remediation standard approved by the Department in the workplan or similar plan differs by an order of magnitude.

§ 7:28-12.5 Sampling, surveying and laboratory requirements

(a) Facilities licensed under 10 C.F.R. Part 50 that have Nuclear Regulatory Commission-approved quality assurance plans are exempt from the requirements of this section. Otherwise, in addition to the requirements in *N.J.A.C. 7:26E* Appendix A IV.1, persons responsible for conducting remediations or licensees shall include the following in the radionuclide analysis reports:

1. Report final results as a value plus or minus the associated error for each sample;

2. Report data as calculated, and not report "less than" values for any sample;

3. Report minimum detectable activities;

4. Calculate results for single sample and composites to the sample collection period mid point;

5. Provide a quantitation report; and

6. Provide copies of the instrument run logs.

(b) If available, persons responsible for conducting remediations or licensees shall provide:

1. The Gamma Spectroscopy Report which includes sample specific header information, peak search, peak identification, background subtraction, activity, and minimum detectable activity;

2. The Gross Beta calculation worksheets and computer generated result forms;

3. Radiochemical Iodine calculation worksheets and computer generated result forms;

4. Liquid Scintillation calculation worksheets and computer-generated result forms; and

5. Gross Alpha and Gross Beta, radium-226, uranium, and strontium-89 and 90 calculation worksheets and computer-generated result forms.

[(c) For radionuclides, analytical methods contained in the following publications, incorporated herein by reference, or equivalents as approved by the Department, shall be used for determining radionuclide concentrations and/or radiation levels:

1. U.S. Environmental Protection Agency; "Prescribed Procedures for Measurement of Radioactivity in Drinking Water," EPA 600/4-80-32, as amended and supplemented. This

document may be obtained from the USEPA National Air and Radiation Environmental Laboratory, 540 S. Morris Ave., Montgomery, AL 36115-2601;

2. U.S. Department Of Energy; "Environmental Measurements Laboratory--Procedures Manual," HASL-300, 27th Ed., Vol. 1, as amended and supplemented. This document may be obtained from the US Department of Energy, Environmental Measurements Laboratory, 201 Varick St., 5th Floor, New York, NY 10014-4811; and/or

3. U.S. Environmental Protection Agency Eastern Environmental Radiation Facility; "Radiochemistry Procedures Manual," EPA 520/5-84-006, as amended and supplemented. This document may be obtained from the address in (c)1 above.]

([d] c) Any laboratory providing radiological analysis for soil or water shall be certified pursuant to *N.J.A.C. 7:18* [for radionuclide analysis in water and, in addition, shall have participated in and passed a soil intercomparison analysis administered by either the International Atomic Energy Agency or the U.S. Department of Energy's Environmental Measurements Laboratory within the year preceding the radiological analysis for the methods of interest].

([e]d)Sampling and surveying for radioactive contamination shall be done in accordance with the protocol specified in that version of the Department of Environmental Protection's Field Sampling Procedure Manual's section on Radiological Assessment, incorporated herein by reference, in effect at the time of sampling and surveying which may be obtained by calling the Bureau of Environmental Radiation at (609) 984-5400 or from the Radiation Protection Program's web site at http://www.state.nj.us/dep/rpp/ index.htm.

§ 7:28-12.6 Remedial action selection

Remedial action selection for all sites contaminated with radioactive material shall be in accordance with N.J.A.C. 7:26E-5.

§ 7:28-12.7 Remedial action requirements

The remedial action requirements for all sites contaminated with radioactive material shall be in accordance with N.J.A.C. 7:26E-6.[, with the exception of *N.J.A.C. 7:26E-6.4*, Post-remedial action requirements. Post-remedial sampling shall be conducted] Post remediation sampling for radioactive contamination shall be conducted in accordance with the guidance provided in that version of the Department of Environmental Protection's Field Sampling Procedure Manual's section on Radiological Assessment, in effect at the time of the post-remedial sampling.

§ 7:28-12.8. Radiation dose standards applicable to remediation of radioactive contamination of all real property

(a) Sites shall be remediated so that the incremental radiation dose to any person from any residual radioactive contamination at the site above that due to natural background radionuclide concentration, under either an unrestricted use remedial action, limited restricted use remedial action, or a restricted use remedial action, shall be as specified below:

1. For the sum of annual external gamma radiation dose (in effective dose equivalent) and intake dose (in committed effective dose equivalent), including the groundwater pathway: 15 millirem (0.15 milliSievert) total annual effective dose equivalent (15 mrem/yr TEDE).

2. For radon-222: three picocuries per liter (pCi/L) of radon gas (111 Bq/m 3).

3. Radioactively contaminated ground water shall be remediated to comply with the New Jersey Groundwater Quality Standards rules, *N.J.A.C. 7:9C*.

4. Radioactively contaminated surface water shall be remediated to comply with the New Jersey Surface Water Quality Standards, N.J.A.C. 7:9B.

§ 7:28-12.9. Minimum remediation standards for [radionuclide] TENORM and source material **contamination [of soil]**

(a) For radioactive contamination [in soils], the requirements of N.J.A.C. 7:28-12.8 shall be considered to be met for a specific radionuclide if:

1. Where only one radionuclide adds to the radioactive contamination of the site, the incremental concentration of the radionuclide above the natural background radionuclide concentration does not exceed the value in Table 1A, 1B (for unrestricted use), 2A, 2B (for limited restricted use), 3A, or 3B (for restricted use) below;

Table 1A Allowed Incremental Derived Concentration Guideline Level of Individual Radionuclides in Soils; Unrestricted Use Standards for Radioactive Contamination (pCi/g) [1]

	Feet of Vertical Extent of Residual Radionuclides (VE)							
Radionuclide	VEl	VE2	VE3	VE4	VE5	VE6	VE7	VE8	VE9
U238[2]	54	35	26	20	17	14	12	11	10
U234[2]	62	37	26	21	17	14	12	11	10
Ra226[3]	3	2	2	2	2	2	2	2	2
U235[2]	29	22	17	14	12	10	9	8	7
Ac227	3	2	2	2	2	2	2	2	2
Th232	2	2	2	2	2	2	1	1	1

Table 1 B Allowed Incremental Derived Concentration Guideline Level of Individual Radionuclides in Soils; Unrestricted Use Standards for Radioactive Contamination (Bq/g)[1]

	Feet of Vertical Extent of Residual Radionuclides (VE)								
Radionuclide	VEl	VE2	VE3	VE4	VE5	VE6	VE7	VE8	VE9
U238[2]	2.02	1.29	0.94	0.75	0.62	0.53	0.46	0.41	0.36
U234[2]	2.29	1.36	0.98	0.76	0.62	0.53	0.46	0.41	0.36
Ra226 [3]	0.10	0.08	0.08	0.08	0.07	0.07	0.07	0.06	0.06
U235[2]	1.07	0.08	0.63	0.52	0.44	0.38	0.34	0.30	0.27
Ac227	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07
Th232	0.08	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05

Table 2A Allowed Incremental Derived Concentration Guideline Level of Individual Radionuclides in Soils; Limited Restricted Use Standards for Radioactive Contamination (pCi/g)[1]

	Feet of Vertical Extent of Residual Radionuclides (VE)								
Radionuclide	VEl	VE2	VE3	VE4	VE5	VE6	VE7	YE8	VE9
U238(2)	64	41	30	24	20	17	15	13	12
U234(2)	69	42	30	24	19	16	14	13	11
Ra226 (3)	5	4	3	3	2	2	2	2	2
U235 (2)	37	27	22	18	15	13	11	10	9
Ac227	5	5	5	5	5	5	5	4	4
Th232	3	3	3	3	3	3	3	3	3

Table 2B Allowed Incremental Derived Concentration Guideline Level of Individual Radionuclides in Soils; Limited Restricted Use Standards for Radioactive Contamination (Bq/g) [1]

	Feet of Vertical Extent of Residual Radionuclides (VE)								
Radionuclide	VEl	VE2	VE3	VE4	VE5	VE6	VE7	VE8	VE9
U238[2]	2.37	1.52	1.12	0.88	0.73	0.62	0.54	0.48	0.43
U234[2]	2.56	1.56	1.12	0.88	0.72	0.61	0.53	0.47	0.42
Ra226 [3]	0.19	0.13	0.11	0.10	0.09	0.09	0.08	0.08	0.08
U235[2]	1.38	1.01	0.80	0.65	0.55	0.48	0.42	0.38	0.34
Ac227	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Th232	0.12	0.12	0.12	0.12	0.12	0.11	0.11	0.10	0.10

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Table 3A Allowed Incremental Derived Concentration Guideline Level of Individual Radionuclides in Soils; Restricted Use Standards for Radioactive Contamination (pCi/g) [1]

Feet of Uncontaminated		Feet of Vertical Extent of Residual Radionuclides (VE)								
Surface Soil		VE1	VE2	VE3	VE4	VE5	VE6	VE7	VE8	VE9
U238[2]	USS 1	82	46	32	24	20	17	15	13	12
	USS2	83	46	32	25	20	17	15	13	12
	USS 3	83	46	33	25	20	17	15	13	12
	USS 4	83	47	33	25	20	18	15	13	12
	USS 5	85	47	33	25	21	16	14	13	12
U234[2]	USS 1	81	45	31	24	19	16	14	13	11
	USS2	81	45	31	24	20	17	14	13	11
	USS 3	81	46	32	24	20	17	14	13	11
	USS4	81	46	32	24	20	17	15	13	11
	USS 5	83	46	32	25	20	17	15	13	12
Ra226[3]	USS 1	7	4	3	3	2	2	2	2	2
	USS 2	7	4	3	3	2	2	2	2	2
	USS 3	7	4	3	3	2	2	2	2	2
	USS 4	7	4	3	3	2	2	2	2	2
	USS 5	7	4	3	3	2	2	2	2	2
U235[2]	USS 1	62	35	25	19	16	13	11	10	9
	USS 2	67	37	25	20	16	13	12	10	9

	USS 3	67	37	26	20	16	14	12	11	10
	USS 4	67	37	26	20	16	14	12	11	10
	USS 5	68	37	26	20	17	14	13	11	10
Ac227	USS 1	17	9	6	5	5	5	5	4	4
	USS 2	18	10	7	7	6	5	5	5	5
	USS 3	18	10	10	8	6	6	6	6	6
	USS 4	18	15	10	8	8	8	8	8	8
	USS 5	26	15	10	10	10	10	10	10	10
Th232	USS 1	15	9	7	5	4	2	3	3	3
	USS 2	21	10	7	5	4	3	3	3	3
	USS 3	21	10	7	5	4	4	4	4	4
	USS 4	21	10	7	5	5	5	5	5	5
	USS 5	21	10	7	6	6	6	6	6	6

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Table 3B Allowed Incremental Derived Concentration Guideline Level of Individual Radionuclides in Soils; Restricted Use Standards for Radioactive Contamination ([pCi/g]Bq/kg) [1]

Feet of Uncontaminated		Feet of Vertical Extent of Residual Radionuclides (VE)								
Surface Soil (USS)		VE1	VE2	VE3	VE4	VE5	VE6	VE7	VE8	VE9
U238[2]	USS 1	3.03	1.70	1.18	0.90	0.74	0.63	0.54	0.48	0.43
	USS2	3.08	1.71	1.18	0.92	0.75	0.63	0.55	0.48	0.43
	USS 3	3.09	1.71	1.21	0.92	0.75	0.63	0.55	0.49	0.44
	USS 4	3.09	1.74	1.21	0.92	0.75	0.64	0.56	0.49	0.44
	USS 5	3.14	1.74	1.21	0.93	0.77	0.65	0.56	0.50	0.44
U234[2]	USS 1	2.98	1.66	1.15	0.88	0.72	0.61	0.53	0.47	0.42
	USS2	2.98	1.66	1.15	0.89	0.73	0.61	0.53	0.47	0.42
	USS 3	2.98	1.66	1.17	0.90	0.73	0.62	0.54	0.47	0.42
	USS4	2.98	1.70	1.18	0.90	0.74	0.62	0.54	0.47	0.42
	USS 5	3.05	1.70	1.18	0.91	0.74	0.63	0.54	0.48	0.43
Ra226[3]	USS 1	0.28	0.13	0.11	0.10	0.09	0.09	0.08	0.08	0.08
	USS 2	0.28	0.13	0.11	0.10	0.09	0.09	0.08	0.08	0.08
	USS 3	0.28	0.13	0.11	0.10	0.09	0.09	0.08	0.08	0.08
	USS 4	0.28	0.13	0.11	0.10	0.09	0.09	0.08	0.08	0.08
	USS 5	0.28	0.13	0.11	0.10	0.09	0.09	0.08	0.08	0.08
U235[2]	USS 1	2.30	1.30	0.91	0.70	0.59	0.49	0.42	0.38	0.34
	USS 2	2.47	1.36	0.94	0.73	0.59	0.49	0.43	0.39	0.35
	USS 3	2.48	1.36	0.95	0.73	0.59	0.50	0.44	0.40	0.36
	USS 4	2.49	1.38	0.95	0.73	0.60	0.52	0.45	0.41	0.37
	USS 5	2.51	1.38	0.95	0.74	0.62	0.53	0.47	0.42	0.37

Ac227	USS 1	0.62	0.34	0.24	0.18	0.18	0.18	0.17	0.17	0.17
	USS 2	0.66	0.36	0.24	0.24	0.23	0.20	0.19	0.19	0.19
	USS 3	0.66	0.36	0.36	0.29	0.23	0.23	0.23	0.23	0.23
	USS 4	0.66	0.54	0.37	0.29	0.28	0.28	0.28	0.28	0.28
	USS 5	0.97	0.54	0.37	0.36	0.36	0.36	0.36	0.36	0.36
Th232	USS 1	0.56	0.35	0.25	0.19	0.15	0.13	0.11	0.10	0.10
	USS 2	0.77	0.39	0.26	0.19	0.15	0.13	0.12	0.12	0.12
	USS 3	0.77	0.39	0.26	0.19	0.15	0.14	0.14	0.14	0.14
	USS 4	0.77	0.39	0.26	0.19	0.17	0.17	0.17	0.17	0.17
	USS 5	0.77	0.39	0.26	0.22	0.22	0.22	0.22	0.22	0.22

(1) The allowed Incremental Concentrations are added to the natural background radionuclide concentration to obtain the absolute value of the allowed radionuclide concentration before mixing.

(2) These allowable concentrations may however, further be limited by the chemical toxicity of uranium. Applicants should inquire with NJDEP's Site Remediation Program for the additional applicable chemical cleanup standards for uranium.

(3) When more than one nuclide is present, use the Radium-226 Table in Appendix A, incorporated herein by reference, for applying the sum of the fractions rule. Then use whatever number is more restrictive for radium-226, the value in Tables 1A through 3B or the value derived using the sum of the fractions rule.

2. Where more than one radionuclide contaminant is present at the site, their concentrations meet the sum of the fractions as described below:

$$\text{Sum of} \quad \frac{CA_i}{C_i} < 1$$

where:

CA_i = the incremental concentration of radionuclide i at the site, and

C_i = the incremental allowed concentration of radionuclide i from Table 1A, 1B, 2A, 2B, 3A, or 3B above, if it were the only remaining radionuclide at the site; and

3. Natural background radionuclide concentration shall be established by the methods presented in the Multi Agency Radiation Survey and Site Investigation Manual (MARSSIM), NUREG-1575, EPA 402 R-97-018, and any subsequent revisions thereto, or as discussed in Chapter 12 of the Department's Field Sampling Procedures Manual.

(b) As an alternate, the requirements of N.J.A.C. 7:28-12.8 shall be considered to be met for a specific radionuclide if:

1. Where only one radionuclide adds to the radioactive contamination of the site, the incremental concentration of the radionuclide above the natural background radionuclide concentration and the amount of uncontaminated surface soil meet the pre-mixing values in Table 4A, 4B (for unrestricted use), 5A, or 5B (for limited restricted use) below;

Table 4A Allowed Incremental Derived Concentration Guideline Level of Individual Radionuclides in Soils; Required Depth of USS; Pre-Mixing Values—Unrestricted Use (pCi/g)[1]

Feet of Uncontaminated Surface Soil (USS)		Feet of Vertical Extent of Residual Radionuclides (VE)								
		VE1	VE2	VE3	VE4	VE5	VE6	VE7	VE8	VE9
U238[2]	USS 1	70*	39	27	21	17	14	12	11	10
	USS 2	76	40	28	21	17	14	13	11	10
	USS 3	76	41	28	22	17	15	13	11	10
	USS 4	77	42	28	22	18	15	13	11	10
	USS 5	78	42	28	22	18	15	13	12	10
U234[2]	USS 1	74	40	27	21	17	14	12	11	10
	USS 2	74	40	27	21	17	14	13	11	10
	USS 3	74	40	28	21	17	15	13	11	10
	USS 4	76	42	28	22	18	15	13	11	10
	USS 5	78	42	28	22	18	15	13	11	10
Ra226[3]	USS 1	5*	3*	3	3	2	2	2	2	2
	USS 2	7	4	3	3	2	2	2	2	2
	USS 3	7	4	3	3	2	2	2	2	2
	USS 4	7	4	3	3	2	2	2	2	2
	USS 5	7	4	3	3	2	2	2	2	2
U235[2]	USS 1	43*	26*	19*	15	13	11	9	8	7
	USS 2	51*	29*	21	15*	13	11	9	8	8
	USS 3	58*	31*	21	16	13	11	10	9	8
	USS 4	62*	31*	21	16	13	11	10	9	8
	USS 5	62*	32*	21	16	14	12	10	9	8
Ac227	USS 1	5*	3*	3	2	2	2	2	2	2
	USS 2	6*	4	3	3	3	3	3	3	3
	USS 3	8	5	4*	3*	4	3	3*	3*	3*
	USS 4	11*	6*	5*	4*	3*	3*	3*	3*	3*
	USS 5	13*	8*	5*	5*	4*	4*	4*	3*	3*
Th232	USS 1	4*	3*	2*	2	2	2	1	1	1
	USS 2	6*	4*	3	3	2	2	2	2	2
	USS 3	8*	5	4	2*	2	2	2	2	2
	USS 4	10*	6	3*	2*	2	2	2	2	2
	USS 5	11	5*	3*	3	3	2*	2*	2*	2*

Table 4B Allowed Incremental Derived Concentration Guideline Level of Individual Radionuclides in Soils; Required Depth of USS; Pre-Mixing Values—Unrestricted Use (Bq/g)[1]

Feet of Uncontaminated Surface Soil (USS)		Feet of Vertical Extent of Residual Radionuclides (VE)								
		VE1	VE2	VE3	VE4	VE5	VE6	VE7	VE8	VE9
U238[2]	USS 1	2.60*	1.46	1.00	0.77	0.64	0.53	0.46	0.41	0.36
	USS 2	2.80	1.49	1.03	0.79	0.64	0.54	0.46	0.41	0.37
	USS 3	2.81	1.51	1.05	0.80	0.64	0.54	0.47	0.42	0.37
	USS 4	2.86	1.54	1.05	0.80	0.65	0.55	0.48	0.42	0.38
	USS 5	2.88	1.54	1.05	0.81	0.66	0.56	0.49	0.43	0.38
U234[2]	USS 1	2.75	1.46	1.00	0.76	0.62	0.53	0.46	0.41	0.36
	USS 2	2.75	1.47	1.01	0.78	0.64	0.53	0.46	0.41	0.37
	USS 3	2.75	1.48	1.04	0.80	0.64	0.54	0.47	0.41	0.37
	USS 4	2.80	1.54	1.05	0.80	0.65	0.55	0.47	0.41	0.37
	USS 5	2.88	1.54	1.05	0.81	0.65	0.55	0.47	0.42	0.37
Ra226[3]	USS 1	0.18*	0.11*	0.11	0.10	0.09	0.08	0.07	0.06	0.06
	USS 2	0.28	0.13	0.11	0.10	0.09	0.08	0.07	0.07	0.07
	USS 3	0.28	0.13	0.11	0.10	0.09	0.09	0.08	0.08	0.08
	USS 4	0.28	0.13	0.11	0.10	0.09	0.09	0.08	0.08	0.08
	USS 5	0.28	0.13	0.11	0.10	0.09	0.09	0.08	0.08	0.08
U235[2]	USS 1	1.59*	0.96*	0.70*	0.57	0.47	0.39	0.34	0.30	0.27
	USS 2	1.89*	1.07*	0.78	0.55*	0.47	0.39	0.34	0.31	0.28
	USS 3	2.15*	1.15*	0.78	0.59	0.47	0.40	0.35	0.32	0.29
	USS 4	2.30*	1.15*	0.79	0.59	0.48	0.41	0.37	0.33	0.30
	USS 5	2.30*	1.17	0.79	0.59	0.50	0.43	0.38	0.34	0.31
Ac227	USS 1	0.18*	0.10*	0.10	0.08	0.08	0.08	0.08	0.07	0.07
	USS 2	0.21*	0.14	0.11	0.11	0.11*	0.10	0.09	0.09	0.09
	USS 3	0.28	0.18	0.14*	0.11*	0.13	0.13	0.09*	0.09*	0.09*
	USS 4	0.41*	0.22*	0.18*	0.14*	0.11*	0.11*	0.09*	0.09*	0.09*
	USS 5	0.48*	0.30*	0.18*	0.18*	0.14*	0.14*	0.14*	0.11*	0.11*
Th232	USS 1	0.15*	0.11*	0.09*	0.09	0.07	0.06	0.06	0.05	0.05
	USS 2	0.22*	0.15*	0.13	0.10	0.08	0.07	0.06	0.06	0.06
	USS 3	0.30*	0.20	0.14	0.08*	0.08	0.07	0.07	0.07	0.07
	USS 4	0.37*	0.21	0.11*	0.08*	0.09	0.09	0.09	0.09	0.09
	USS 5	0.42	0.20*	0.11*	0.11	0.11	0.09*	0.09*	0.09*	0.09*

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Table 5A Allowed Incremental Derived Concentration Guideline Level of Individual Radionuclides in Soils; Required Depth of USS; Pre-Mixing Values—Limited Restricted Use (pCi/g)[1]

Feet of Uncontaminated Surface Soil (USS)		Feet of Vertical Extent of Residual Radionuclides (VE)								
		VE1	VE2	VE3	VE4	VE5	VE6	VE7	VE8	VE9
U238[2]	USS 1	82	45*	32	24	20	17	15	13	12
	USS 2	83	46	32	25	20	17	15	13	12
	USS 3	83	46	33	25	20	17	15	13	12
	USS 4	83	47	33	25	20	17	15	13	12
	USS 5	85	47	33	25	21	18	15	13	12
U234[2]	USS 1	81	45	31	24	19	16	14	13	11
	USS 2	81	45	31	24	20	17	14	13	11
	USS 3	81	45	32	24	20	17	14	13	11
	USS 4	81	46	32	24	20	17	15	13	11
	USS 5	83	46	32	25	20	17	15	13	11*
Ra226[3]	USS 1	7	4	3	3	2	2	2	2	2
	USS 2	7	4	3	3	2	2	2	2	2
	USS 3	7	4	3	3	2	2	2	2	2
	USS 4	7	4	3	3	2	2	2	2	2
	USS 5	7	4	3	3	2	2	2	2	2
U235[2]	USS 1	62	32*	24*	19	16	13	11	10	9
	USS 2	67	37	25	20	16	13	12	10	9
	USS 3	67	37	26	20	16	14	12	11	10
	USS 4	67	37	26	20	16	14	12	11	10
	USS 5	68	37	26	20	17	14	13	11	10
Ac227	USS 1	9*	7*	6	5	5	5	5	4	4
	USS 2	14*	10	7	7	6	5	5	5	5
	USS 3	18	10	10	8	6	6	6	6	6
	USS 4	18	15	10	8	8	7*	7*	7*	7*
	USS 5	26	15	10	10	9*	8*	8*	7*	7*
Th232	USS 1	7*	5*	5*	4*	4	3	3	3	3
	USS 2	10*	7*	6*	5	4	3	3	3	3
	USS 3	14*	8*	7	5	4	4	4	4	4
	USS 4	17*	10	7	5	5	5	5	5	5
	USS 5	20*	10	7	6	6	6	6	5*	5*

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Table 5B Allowed Incremental Derived Concentration Guideline Level of Individual Radionuclides in Soils; Required Depth of USS; Pre-Mixing Values—Limited Restricted Use (Bq/g)[1]

Feet of Uncontaminated Surface Soil (USS)		Feet of Vertical Extent of Residual Radionuclides (VE)								
		VE1	VE2	VE3	VE4	VE5	VE6	VE7	VE8	VE9
U238[2]	USS 1	3.03	1.67	1.18	0.90	0.74	0.63	0.54	0.48	0.43
	USS 2	3.08	1.71	1.18	0.92	0.75	0.63	0.55	0.48	0.43
	USS 3	3.09	1.71	1.21	0.92	0.75	0.63	0.55	0.49	0.44
	USS 4	3.09	1.74	1.21	0.92	0.75	0.64	0.56	0.49	0.44
	USS 5	3.14	1.74	1.21	0.93	0.77	0.65	0.56	0.50	0.44
U234[2]	USS 1	2.98	1.66	1.15	0.88	0.72	0.61	0.53	0.47	0.42
	USS 2	2.98	1.66	1.15	0.89	0.73	0.61	0.53	0.47	0.42
	USS 3	2.98	1.66	1.17	0.90	0.73	0.62	0.54	0.47	0.42
	USS 4	2.98	1.70	1.18	0.90	0.74	0.62	0.54	0.47	0.42
	USS 5	3.05	1.70	1.18	0.91	0.74	0.63	0.54	0.48	0.43
Ra226[3]	USS 1	0.28	0.13	0.11	0.10	0.09	0.09	0.08	0.08	0.08
	USS 2	0.28	0.13	0.11	0.10	0.09	0.09	0.08	0.08	0.08
	USS 3	0.28	0.13	0.11	0.10	0.09	0.09	0.08	0.08	0.08
	USS 4	0.28	0.13	0.11	0.10	0.09	0.09	0.08	0.08	0.08
	USS 5	0.28	0.13	0.11	0.10	0.09	0.09	0.08	0.08	0.08
U235[2]	USS 1	2.30	1.18*	0.89*	0.70	0.59	0.49	0.42	0.38	0.34
	USS 2	2.47	1.36	0.94	0.73	0.59	0.49	0.43	0.39	0.35
	USS 3	2.48	1.36	0.95	0.73	0.59	0.50	0.44	0.40	0.36
	USS 4	2.49	1.38	0.95	0.73	0.60	0.52	0.45	0.41	0.37
	USS 5	2.51	1.38	0.95	0.74	0.62	0.53	0.47	0.42	0.37
Ac227	USS 1	0.33	0.26*	0.24	0.18	0.18	0.18	0.17	0.17	0.17
	USS 2	0.52*	0.36	0.24	0.24	0.23	0.20	0.19	0.19	0.19
	USS 3	0.66	0.36	0.36	0.29	0.23	0.23	0.23	0.23	0.23
	USS 4	0.66	0.54	0.37	0.29	0.28	0.26*	0.26*	0.26*	0.26*
	USS 5	0.97	0.54	0.37	0.36	0.33*	0.28*	0.28*	0.26*	0.26*
Th232	USS 1	0.26*	0.18*	0.18*	0.15*	0.15	0.13	0.11	0.10	0.10
	USS 2	0.37*	0.26*	0.22*	0.19	0.15	0.13	0.12	0.12	0.12
	USS 3	0.52*	0.30*	0.26	0.19	0.15	0.14	0.14	0.14	0.14
	USS 4	0.63*	0.39	0.26	0.19	0.17	0.17	0.17	0.17	0.17
	USS 5	0.74*	0.39	0.26	0.22	0.22	0.22	0.22	0.17*	0.17*

[1] The allowed Incremental Concentrations are added to the natural background radionuclide concentration to obtain the absolute value of the allowed radionuclide concentration before mixing.

[2] These allowable concentrations may however, further be limited by the chemical toxicity of uranium. Applicants should inquire with NJDEP's Site Remediation Program for the additional applicable chemical cleanup standards for uranium.

[3] When more than one nuclide is present, use the Radium-226 Table in Appendix B, incorporated herein by reference, for applying the sum of the fractions rule. Then use whatever number is more restrictive for radium-226, the value in Tables 4A-through 5B or the value derived using the sum of the fractions rule.

* Values were back-calculated to ensure 15 mrem/yr TEDE after mixing.

2. After it is established that the concentrations in Table 4A, 4B, 5A, or 5B above are met, the layer of residual [radionuclides]radioactivity shall be mixed thoroughly with the layer of uncontaminated surface soil to achieve a uniform concentration, as outlined in Chapter 12 of the Department's Field Sampling Procedures Manual, throughout the soil column;

3. Where more than one radionuclide contaminant is present at the site, their concentrations meet the sum of the fractions as described below:

$$\text{Sum of} \quad \frac{CA_i}{\text{-------}} \quad <= 1$$

C_i

where:

CA_i = the incremental concentration of radionuclide i at the site, and

C_i = the incremental allowed concentration of radionuclide i from Table 4A, 4B, 5A, or 5B above, if it were the only remaining radiounuclide at the site; and

4. The requirements in (a)3 above shall be met.

§ 7:28-12.10. Minimum remediation standards for accelerator-produced, by-product, and certain special nuclear materials

(a) Remediation standards shall meet the requirements set forth in 7:28-12.8.

(b) Computer models acceptable to the Department may be used to determine the remediation standards.

(c)Modeling parameters used in developing unrestricted and restricted use standards should be equivalent to those used in the NJDEP's model, RaSoRS which is available on the Radiation Protection Programs website at http://www.state.nj.us/dep/rpp/index.htm.

(d) Dose calculations shall be performed out to the time of peak dose at a minimum.

(e) Restricted use remediation standards shall meet requirements set forth in N.J.A.C. 7:28-12.11(e) and 12.12.

§ 7:28-12.1[0]1. Petition for alternative remediation standards for radioactive contamination

(a) In lieu of using the minimum remediation standards for radioactive contamination [of soil] found at N.J.A.C. 7:28-12.9 or developed under N.J.A.C. 7:28-12.10, a person or licensee may petition the Department for an alternative [soil] remediation standard for radioactive contamination. Such an alternate [soil cleanup] remediation standard:

1. Shall not result in incremental doses, for sum of annual external radiation dose and intake dose, exceeding 15 mrem/yr (0.15 mSv/yr) total effective dose equivalent;

2. Shall not result in incremental concentrations exceeding three pCi/L (111 Bq/m[3]) of radon in indoor air in the lowest level of the building; and

3. Shall not result in radionuclide in groundwater levels exceeding those in the New Jersey Groundwater Quality Standards in N.J.A.C. 7:9C.

4. Shall not result in radionuclide in surface water levels exceeding those in the New Jersey Surface Quality Standards in N.J.A.C. 7:9B.

(b) The Department shall not consider a petition for an alternative [soil] remediation standard for radionuclides that is supported by increasing, in any manner, the allowed incremental [background] dose [value] criteria of 15 mrem/yr (0.15 mSv/yr) or the allowed incremental radon in air concentration of three pCi/L (111 Bq/m[3]), or varying the parameters listed in Tables 6 or 7 below.

Table 6

Parameter	Unrestricted	Limited or Restricted
Indoor onsite breathing rate(m^3/hr)	0.63	1.4
Outdoor onsite breathing rate(m^3/hr)	1.40	1.4
Soil ingestion rate (g/yr)	70	12.5
Homegrown crop ingestion rate(g/yr)	17,136	0
Drinking water consumption rate(l/yr)	700	700
Shielding factor through basement or slab	0.20	0.20
Shielding factor through wall	0.80	0.80
Shielding factor outside	1.00	1.00

Table 7 Soil to Vegetation Transfer Factors

Element	pCi/g plant (wet) to pCi/g soil (dry)
Th	1E-3
Ra	4E-2
Pb	1E-2
Po	1E-3

U	2.5E-3
Ac	2.5E-3
Pa	1E-2
Bi	1E-1

(c) The Department shall consider petitions only in cases where site-specific or waste specific factors, and/or site design features are used in performing the dose assessment, which are different than those used by the Department in establishing the [soil concentrations] remediation standards in N.J.A.C. 7:28-12.9 or 12.10. Factors which the Department shall consider in a petition for an alternate [soil] remediation standard include, but are not limited to:

1. The chemical or physical state of the radioactive material;

2. Site-specific soil characteristics, depth to groundwater and other geological and hydrogeological characteristics which may substantially change the potential dose from radionuclides, as compared to the values listed in Tables 8 and 9 below.

Table 8 Generic Site Input Parameters for Groundwater Pathway Analysis

Dimensions of contaminated zone, LxW (m)	100 x 100
Percolation rate (vertical Darcy velocity, m/yr)	0.5
Volumetric water content in contaminated zone (m^3/m^3)	0.35
Volumetric water content in unsaturated zone (m^3/m^3)	0.2
Bulk density of contaminated zone (g/m^3)	1.6
Bulk density of saturated zone (g/m^3)	1.6
Unsaturated zone thickness (distance from bottom of source to aquifer, m)	0.5
Porosity of aquifer	0.45
Longitudinal dispersivity in aquifer (m)	9
Transverse dispersivity in aquifer (m)	4
Pore velocity in aquifer (m/yr)	4
Well screen thickness (mixing depth, m)	10

Table 9 Sorption Coefficients used for Groundwater Pathway Analysis

Isotopes	Kd (mg/L)
uranium	35
thorium	3,200
radium	500

lead	270
proactinium	550
actinium	450

3. Use of caps, covers, sealants, geotextile membranes, limits on the vertical extent of radioactive contamination remaining on site and/or other engineering or institutional controls that reduce potential exposures to radioactive materials; and

4. Changes in indoor and outdoor occupancy times, which are justified by land uses other than residential or commercial.

(d) A petition for an alternate [soil] remediation standard shall include an analysis demonstrating how and why the difference in factors such as those in Tables 8 and 9 above and/or indoor and outdoor occupancy times will result in substantially different [soil] remediation standards than those in N.J.A.C. 7:28-12.9.

(e) Regardless of the factors used by the petitioner or licensee, the Department shall not approve alternative standard petitions that include institutional and engineering controls where failure of those controls, not including the failure of a radon remediation system, would result in more than 100 mrem (one mSv) total annual effective dose equivalent.

(f) Long Term Control licenses issued by the US Nuclear Regulatory Commission are not valid.

([f]g) In the event the Department determines that sufficient evidence exists to support consideration of an alternative [soil] remediation standard, the petitioner or licensee shall submit a written analysis which demonstrates compliance with the dose limits in N.J.A.C. 7:28-12.9 or 12.10 including:

1. The remedial action informational requirements of N.J.A.C. 7:26E-6; and

2. A dose assessment analysis, including:

i. An estimate of the radiation doses received by a post-remediation on-site resident for an unrestricted use remedial action, or by a resident or an employee (of a proposed commercial use facility) for a limited restricted use remedial action;

ii. A presentation of all equations or other mathematical techniques used, either directly or embodied in a computer model, to predict the movement of radionuclides and/or their resulting radiation dose;

iii. Dose [Groundwater radionuclide concentration] calculations which shall be [extended for a period of 1,000 years] performed out to the time of peak dose at a minimum;

iv. A presentation of all numerical input parameters to equations or computer models, the range of values for those parameters, including reference sources, the value selected for use and the basis for that selection;

v. A presentation of other relevant factors and assumptions used in the analyses, such as site-specific geology, land use, etc.;

vi. An analysis of which input parameters, when varied, would most significantly affect radiation dose results, commonly referred to as a sensitivity analysis; and

vii. An analysis of both continued use of existing structures and future use scenarios. Future use scenarios shall include, if applicable, the construction of buildings for either unrestricted use remedial actions or limited restricted use remedial actions, including excavations for basements and/or footings.

([g]h) Engineering controls or institutional controls may be incorporated as part of a petition for an alternative remediation standard provided that these controls will be durable and implemented for an appropriate period of time to achieve their intended purpose.

([h]i) Computer models acceptable to the Department may be used by the petitioner or licensee for an alternative [soil] remediation standard to confirm that the requirements of *N.J.A.C. 7:28-12.9* or N.J.A.C. 7:28-12.10 have been and will continue to be met.

415

416 **§ 7:28-12.1[1]2 Requirements pertaining to engineering or institutional controls**

417

418 (a) All remediation proposals shall designate the intended use(s) of the property. Such
419 intended use(s) shall be restricted as necessary to prevent future exposure, and shall
420 otherwise be consistent with current and projected State and local zoning designations or land
421 uses. For sites not remediated to the unrestricted use standards in *N.J.A.C. 7:28-12.9* or
422 12.10, the Department shall define the nature and duration of all appropriate engineering or
423 institutional controls necessary to meet the standards in *N.J.A.C. 7:28-12.9*, 12.10, or
424 *12.1[0]1(a)*, based upon the particular conditions of the site.

425 (b) In order for any remediation under this subchapter requiring engineering controls or
426 institutional controls to meet the standards in *N.J.A.C. 7:28-12.9*, *12.10*, or *12.1[0]1(a)*, the
427 person responsible for conducting the remediation or licensee shall, in addition to meeting the
428 provisions of *N.J.S.A. 58:10B-13*:

429 1. Implement all necessary actions, as determined by the Department, to assure that such
430 engineering or institutional controls are being implemented and maintained for an appropriate
431 period of time; and

432 2. Provide sufficient financial assurance for the costs of implementing and maintaining
433 the requisite active engineered or institutional controls for an appropriate period of time.
434 Acceptable financial assurance mechanisms are-

435 i. Funds placed into an account segregated from the petitioner or licensee's assets and
436 out side the petitioner's or licensee's administrative control as described in § N.J.A.C. 7:28-
437 51.1;

ii. Surety method, insurance, or other guarantee method as described in §N.J.A.C. 7:28-51.1;

iii. A statement of intent in the case of Federal, State, or local Government licensees, as described in §N.J.A.C. 7:28-51.1; or

iv. If a government entity is assuming custody and ownership of a site, an arrangement that is deemed acceptable by such governmental entity.

(c) A person responsible for conducting the remediation or licensee shall conduct public outreach if the Department determines that outreach is needed, or when the Department determines that there is substantial public interest in activities concerning restricted release license termination.

1. The Department may determine that there is substantial public interest when it receives:

i. A petition containing the signatures of 25 or more people that live or work within 200 feet of the site, if contamination has not migrated from the site boundary;

ii. A petition containing the signatures of 25 people that live or work within 200 feet of the extent of contamination, if contamination has migrated from the site boundary; or

iii. A written request by a municipal official, such as a Mayor or chairperson of an environmental commission, or a designated local health official.

2. When the Department determines that there is substantial public interest the Department shall notify the person responsible for conducting the remediation or the licensee and post a summary of findings on the Department's web site at www.state.nj.us/dep; and

3. The person responsible for conducting the remediation or the licensee shall develop and implement enhanced public notice based on the expressed needs of the community and may include the following:

i. Publicizing and hosting an information session or public meeting;

ii. Publishing a notice containing basic information about the site in the local paper of record; or

iii. Establishing a local information repository.

4. The notifications required pursuant to this section are not intended to satisfy the public participation requirements applicable to sites subject to the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601, et seq. and the National Contingency Plan, 40 C.F.R. Part 300.

§ 7:28-12.1[2]3 Requirements pertaining to a change in land use

(a) Any subsequent proposed use of a property that is different from the intended use (other than unrestricted use remedial actions) described in the original remediation proposal shall require a prior review and prior approval by the Department. To initiate this review, 90 calendar days prior to a proposed change in land use, the person or licensee proposing such use shall prepare and submit to the Department, at the Bureau of Environmental Radiation, PO Box 415, Trenton, NJ 08625-0415, and to each affected municipality, a brief written description of the new proposed use as compared to the intended use upon which the original remediation was based including all planned soil excavations, and any additional remedial actions to be implemented.

(b) If the Department determines that the proposed new use may cause the dose limitations of N.J.A.C. 7:28-12.8 to be exceeded, the person or licensee requesting the use change shall be required to prepare and submit to the Department's Bureau of Environmental Radiation, PO Box 415, Trenton, NJ 08625-0415, a dose assessment analysis, containing the information required under N.J.A.C. 7:28-12.1[0]1(f)2, (g), and (h), to ascertain whether the dose limitation requirements of N.J.A.C. 7:28-12.8 will be met for the proposed new use.

(c) In preparing the dose assessment analysis, the person or licensee may incorporate into the new use plan new remedial measures such as different radionuclide in soil concentrations, or radioactive contamination vertical extents, and/or new engineering or institutional controls, provided that for engineering or institutional controls, the person responsible for conducting the remediation or licensee provides for the cost of implementing and maintaining them as specified in N.J.A.C. 7:28-12.1[1]2(c)3.

§ 7:28-12.1[3]4 Requirements pertaining to the final status survey

The final status survey is performed to demonstrate that a site meets the remediation standards. It shall be done in accordance with that version of the Department of Environmental Protection's Field Sampling Manual's section on Radiological Assessment, which is incorporated herein by reference, in effect at the time of the survey which may be obtained by calling the Bureau of Environmental Radiation at (609) 984-5400 or from the Radiation Protection Program's web site at http://www.state.nj.us/dep/rpp/index.htm. Chapter 12 of the Department's Field Sampling Procedures Manual follows the methodology provided in MARSSIM with some modifications.

§ 7:28-12.1[4] 5 Minimization of contamination

Applicants for licenses, other than renewals, shall describe in the application how facility design and procedures for operation will minimize, to the extent practicable, contamination of the facility and the environment, facilitate eventual decommissioning, and minimize, to the extent practicable, the generation of radioactive waste.

SUBCHAPTER 13. REPORTS OF THEFTS AND RADIATION INCIDENTS

§ 7:28-13.1 Reports of theft or loss

[A State licensee, radioactive materials registrant or registrant shall immediately notify the Department by telephone, telefax or telegraph of any theft or loss of any source of radiation including machine sources and any naturally occurring or accelerator produced radioactive material, including TENORM, in such quantities and under such circumstances that a substantial radiation hazard and/or contamination hazard may result.]

(a) *Telephone reports.* (1) Each licensee or registrant shall report by telephone as follows:

(i) Immediately after its occurrence becomes known to the licensee or registrant, any lost, stolen, or missing ionizing radiation producing machine or licensed material in an aggregate quantity equal to or greater than 1,000 times the quantity specified in appendix C to part 10 CFR Part 20, incorporated herein by reference, under such circumstances that it appears to the licensee that an exposure could result to persons in unrestricted areas; or

(ii) Within 30 days after the occurrence of any lost, stolen, or missing licensed material becomes known to the licensee or registrant, all licensed material in a quantity greater than 10 times the quantity specified in appendix C to 10 CFR Part 20, herein incorporated by reference, that is still missing at this time.

(2) Reports shall be made by telephone to the NJDEP 24 hour Emergency Notification Center (888)-CALLDEP.

(b) *Written reports.* (1) Each licensee or registrant required to make a report under paragraph

(a) of this section shall, within 30 days after making the telephone report, make a written report setting forth the following information:

(i) A description of the ionizing radiation producing machine or licensed material involved, including kind, quantity, and chemical and physical form; and

(ii) A description of the circumstances under which the loss or theft occurred; and

(iii) A statement of disposition, or probable disposition, of the ionizing radiation producing machine or licensed material involved; and

(iv) Exposures of individuals to radiation, circumstances under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas; and

(v) Actions that have been taken, or will be taken, to recover the ionizing radiation producing machine or licensed material; and

(vi) Procedures or measures that have been, or will be, adopted to ensure against a recurrence of the loss or theft of an ionizing radiation producing machine or licensed material.

(2) Reports shall be made as follows:

(i) Reports involving ionizing radiation producing machines shall be made to the Bureau of Radiological Health, PO Box 415, Trenton, NJ 08625-0415

(ii) Reports involving licensed material shall be made to the Bureau of Environmental Radiation, PO Box 415, Trenton, NJ 06625-0415.

(d) Subsequent to filing the written report, the licensee or registrant shall also report any additional substantive information on the loss or theft within 30 days after the licensee or registrant learns of such information.

(e) The licensee or registrant shall prepare any report filed with the Department pursuant to this section so that names of individuals who may have received exposure to radiation are stated in a separate and detachable part of the report.

§ 7:28-13.2. [Reportable radiation]Notification of incidents

[(a) A State licensee, radioactive materials registrant or registrant shall immediately notify the Department by telephone, telefax or telegraph of any radiation incident which may have caused or threatens to cause the following:

1. Exposure of the whole body of any individual to 25 rems or more of radiation; exposure of the skin of the whole body of any individual to 150 rems or more of radiation; or exposure of the feet, ankles, hands or forearms of any individual to 375 rems or more of radiation;

2. The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 5,000 times the limits specified for such materials in N.J.A.C. 7:28-11 Appendix, Table 1, or prorated values if more than one isotope is released;]

(a) Immediate notification. Notwithstanding any other requirements for notification, each licensee or registrant shall immediately report any event involving technologically enhanced naturally occurring, accelerator produced, byproduct, source, special nuclear material possessed by the licensee, or ionizing radiation producing machine that may have caused or threatens to cause any of the following conditions--

(1) An individual to receive--

(i) A total effective dose equivalent of 25 rems (0.25 Sv) or more; or

(ii) A lens dose equivalent of 75 rems (0.75 Sv) or more; or

(iii) A shallow-dose equivalent to the skin or extremities of 250 rads (2.5 Gy) or more; or

(2) The release of radioactive material, inside or outside of a restricted area, so that, had an individual been present for 24 hours, the individual could have received an intake five times the annual limit on intake (the provisions of this paragraph do not apply to locations where personnel are not normally stationed during routine operations, such as hot-cells or process enclosures).

3. A loss of one working week or more of the operation of any facilities affected; or

4. Damage to property in excess of $100,000.

[(b) The names of any individuals who have been exposed to radiation levels set forth in subsection (a) of this Section shall not be included in the report.]

(b) Twenty-four hour notification. Each licensee or registrant shall, within 24 hours of discovery of the event, report any event involving loss of control of licensed material possessed by the licensee or loss of control of the ionizing radiation producing machine that may have caused, or threatens to cause, any of the following conditions:

(1) An individual to receive, in a period of 24 hours--

(i) A total effective dose equivalent exceeding 5 rems (0.05 Sv); or

(ii) A lens dose equivalent exceeding 15 rems (0.15 Sv); or

(iii) A shallow-dose equivalent to the skin or extremities exceeding 50 rems (0.5 Sv); or

(2) The release of radioactive material, inside or outside of a restricted area, so that, had an individual been present for 24 hours, the individual could have received an intake in excess of one occupational annual limit on intake (the provisions of this paragraph do not apply to locations where personnel are not normally stationed during routine operations, such as hot-

cells or process enclosures).

[(c) A State licensee, radioactive materials registrant or registrant shall notify the Department within 24 hours by telephone, telefax or telegraph of any radiation incident which may have caused or threatens to cause the following:

1. Exposure of the whole body of any individual to five rems or more of radiation; exposure of the skin of the whole body of any individual to 30 rems or more of radiation; or exposure of the feet, ankles, hands or forearms to 75 rems or more of radiation;

2. The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 500 times the limit specified for such materials in N.J.A.C. 7:28-11 Appendix, Table 1, or prorated values if more than one isotope is released;]

3. A loss of one day or more of the operation of any facilities affected; or

4. Damage to property in excess of $1,000.

[(d) The names of any individuals who have been exposed to radiation levels set forth in subsection (c) of this Section shall not be included in the report.]

(c) The licensee or registrant shall prepare any report filed with the Department pursuant to this section so that names of individuals who have received exposure to radiation or radioactive material are stated in a separate and detachable part of the report.

(d) Reports made by licensees or registrants in response to the requirements of this section shall be made by telephone to the NJDEP 24 hour Emergency Notification Center (888)-CALLDEP.

(e) The provisions of this section do not include doses that result from planned special exposures, that are within the limits for planned special exposures, and that are reported under § 13.4.

[(e) A State licensee, radioactive materials registrant or registrant shall notify the Department in writing within 30 days of the following:

1. Each exposure of an individual to radiation or concentrations of radioactive material in excess of any applicable limit of N.J.A.C. 7:28-6, or of a State licensee's license;

2. Any incident for which notification is required by subsections (a) and (c) of this Section; or

3. Levels of radiation or concentrations of radioactivity, not involving exposure of any individual in excess of any applicable limit of N.J.A.C. 7:28-6 outside a controlled area in excess of 10 times the limits of *N.J.A.C. 7:28-6.2* and 11 or of a State licensee's license.

(f) The reports set forth in subsection (e) of this Section shall describe the extent of exposure of individuals to radiation or to radioactive materials, the levels of radiation and concentrations of radioactive materials involved, the cause of the exposure, levels, or concentrations and corrective steps taken or planned to assure against a recurrence.

(g) In each case where (e)1 above requires a report to the Department of exposure of an individual, the owner shall:

1. Delete from the report all references to the names and addresses of individuals so exposed. The identity of such individuals shall be privileged and shall be submitted as a separate document of such report; and]

§ 13.3 Reports of exposures, radiation levels, and concentrations of radioactive material

exceeding the constraints or limits.

(a) *Reportable events.* In addition to the notification required by § 13.2, each licensee or registrant shall submit a written report within 30 days after learning of any of the following occurrences:

(1) Any incident for which notification is required by § 13.2; or

(2) Doses in excess of any of the following:

(i) The occupational dose limits for adults in § N.J.A.C. 7:28-6.1; or

(ii) The occupational dose limits for a minor in § 7:28-6.6; or

(iii) The limits for an embryo/fetus of a declared pregnant woman in § 7:28-6.7; or

(iv) The limits for an individual member of the public in § 7:28-6.8; or

(v) Any applicable limit in the license; or

(vi) The ALARA constraints for air emissions established under § N.J.A.C. 7:28-6.11(d); or

(3) Levels of radiation or concentrations of radioactive material in--

(i) A restricted area in excess of any applicable limit in the license; or

(ii) An unrestricted area in excess of 10 times any applicable limit set forth in this chapter or in the license (whether or not involving exposure of any individual in excess of the limits in § N.J.A.C. 7:28-6.8); or

(4) For licensees subject to the provisions of EPA's generally applicable environmental radiation standards in 40 CFR part 190, levels of radiation or releases of radioactive material in excess of those standards, or of license conditions related to those standards.

(b) *Contents of reports.* (1) Each report required by paragraph (a) of this section shall describe the extent of exposure of individuals to radiation and radioactive material, including, as appropriate:

(i) Estimates of each individual's dose; and

(ii) The levels of radiation and concentrations of radioactive material involved; and

(iii) The cause of the elevated exposures, dose rates, or concentrations; and

(iv) Corrective steps taken or planned to ensure against a recurrence, including the schedule for achieving conformance with applicable limits, ALARA constraints, generally applicable environmental standards, and associated license conditions.

(2) Each report filed pursuant to paragraph (a) of this section shall include for each occupationally overexposed[1] individual: the name, Social Security account number, and date of birth. The report must be prepared so that this information is stated in a separate and detachable part of the report and must be clearly labeled "Privacy Act Information: Not for Public Disclosure."

(c) All licensees or registrants who make reports under paragraph (a) of this section shall submit the report in writing either by mail addressed to the following:

(1) Reports involving ionizing radiation producing machines shall be made to the Bureau of Radiological Health, PO Box 415, Trenton, NJ 08625-0415

(2) Reports involving licensed material shall be made to the Bureau of Environmental Radiation, PO Box 415, Trenton, NJ 06625-0415.

[1] With respect to the limit for the embryo-fetus (§ 7:28-6.7), the identifiers should be those of

the declared pregnant woman.

§ 13.4 Reports of planned special exposures.

(a) The licensee or registrant shall submit a written report within 30 days following any planned special exposure conducted in accordance with § 7:28-6.5, informing the Department that a planned special exposure was conducted and indicating the date the planned special exposure occurred and the information required by § 7:28-8.8 to the following:

(1) Reports involving ionizing radiation producing machines shall be made to the Bureau of Radiological Health, PO Box 415, Trenton, NJ 08625-0415

(2) Reports involving licensed material shall be made to the Bureau of Environmental Radiation, PO Box 415, Trenton, NJ 06625-0415.

§ 13.5 Reports to individuals of exceeding dose limits.

[2. Concurrently give written notification to the individual of the nature and extent of he exposure.]

When a licensee or registrant is required, pursuant to the provisions of §§ 13.3, 13.4, or 13.6, to report to the Department any exposure of an identified occupationally exposed individual, or an identified member of the public, to radiation or radioactive material, the licensee or registrant shall also provide a copy of the report submitted to the Department to the individual. This report shall be transmitted at a time no later than the transmittal to the Department. Such notice shall contain the following statement: "This report is furnished to you under the provisions of Subchapter 13 (Reports of Thefts and Radiation Incidents) of the New Jersey Administrative Code. You should preserve this report for future reference."

§ 13.6 Reports of individual monitoring.

(a) This section applies to each person licensed by the Department to--

(1) Possess or use byproduct material for purposes of radiography pursuant to N.J.A.C. 7:28-51.1 or N.J.A.C. 7:28-17; or

(2) Possess or use at any time, for processing or manufacturing for distribution pursuant to N.J.A.C. 7:28-51.1, 53.1, 54.1, or 55.1, byproduct material in quantities exceeding any one of the following quantities:

Radionuclide	Quantity of radionuclide[1] in curies
Cesium-137	1
Cobalt-60	1
Gold-198	100
Iodine-131	1
Iridium-192	10
Krypton-85	1,000
Promethium-147	10
Techetium-99m	1,000

[1] The Department may require as a license condition, or by rule, regulation, or order pursuant to § N.J.A.C. 7:28-2.13, reports from licensees who are licensed to use radionuclides not on this list, in quantities sufficient to cause comparable radiation levels.

(b) Each licensee in a category listed in paragraph (a) of this section shall submit an annual report of the results of individual monitoring carried out by the licensee for each individual for whom monitoring was required by § 7:28-7.3 during that year. The licensee may include additional data for individuals for whom monitoring was provided but not required. The licensee shall use Form NRC 5 or equivalent or electronic media containing all the information required by Form NRC 5.

(c) The licensee shall file the report required by § 13.6(b), covering the preceding year, on or before April 30 of each year. The licensee shall submit the report to the Bureau of Environmental Radiation, PO Box 415, Trenton, NJ 06625-0415.

SUBCHAPTER 50. NOTICES, INSTRUCTIONS AND REPORTS TO WORKERS: INSPECTION AND INVESTIGATIONS

7:28-50.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 C.F.R. Part 19, as supplemented or amended, the Atomic Energy Act of 1954, as amended, title II of the Energy Reorganization Act of 1974, and regulations, orders, and licenses there under.

(b) The following provisions of 10 C.F.R. Part 19 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 C.F.R. Part 19.5, Communications.
2. 10 C.F.R. Part 19.8, Information collection requirements: OMB approval

(c) The following provisions of 10 C.F.R. Part 19 are incorporated by reference with the specified changes:

1. 10 C.F.R. 19.3, Definitions:

i. "Commission" shall mean the New Jersey Department of Environmental Protection.

2. "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission" as used in the provisions of the Code of Federal Regulations which are incorporated by reference, means the New Jersey Department of Environmental Protection, except when specifically noted, then it means the United States Nuclear Regulatory Commission.

3. 10 C.F.R. 19.11(a)(1), replace "part 20" with "N.J.A.C. 7:28-1 through N.J.A.C. 7:28-13"

4. 10 C.F.R. 19.13(b), replace "Sec. 20.2106 of 10 CFR part 20" with "N.J.A.C. 7:28-8.9"

5. 10 C.F.R. 19.13(c)(1)(i), replace "Sec. 20.2106" with "N.J.A.C. 7:28-8.9"

6. 10 C.F.R. 19.13(c)(1)(i), replace "Sec. 20.1502" with "N.J.A.C. 7:28-7.3"

7. 10 C.F.R. 19.13(d), replace "Sec. Sec. 20.2202, 20.2203, 20.2204, or 20.2206 of this Chapter" with "N.J.A.C. 7:28-13.2, 13.3, 13.4 or 13.6"

(d) For those facilities whose radioactive materials are solely licensed by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation" available from the Department.

(e) Those facilities who possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the Department's form RPP-14, "Notice to Employees, Standards for Protection Against

Radiation."

(f) All required reports shall be forwarded to the Department.

SUBCHAPTER 51. RULES OF GENERAL APPLICABILITY TO DOMESTIC LICENSING OF BYPRODUCT MATERIAL

7:28-51.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 C.F.R. Part 30, as supplemented or amended, the Atomic Energy Act of 1954, as amended, title II of the Energy Reorganization Act of 1974, and regulations, orders, and licenses there under.

(b) The following provisions of 10 C.F.R. Part 30 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 C.F.R. Part 30.6, Communications.

2. 10 C.F.R. Part 30.8, Information collection requirements: OMB approval

(c) The following provisions of 10 C.F.R. Part 30 are incorporated by reference with the specified changes:

1. 10 C.F.R. 30.4, Definitions:

i. "Commission" shall mean the New Jersey Department of Environmental Protection.

2. "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission" as used in the provisions of the Code of Federal Regulations which are incorporated by reference, means the New Jersey Department of Environmental Protection, except when specifically noted, then it means the United States Nuclear Regulatory Commission.

3. 10 C.F.R. 30.15(a), delete "20 and" and add "and N.J.A.C. 7:28-1 through N.J.A.C. 7:28-13" after "of this Chapter"

4. 10 C.F.R. 30.16, delete "20 and" and add "and N.J.A.C. 7:28-1 through N.J.A.C. 7:28-13" after "of this Chapter"

5. 10 C.F.R. 30.19(a), delete "20 and" and add "and N.J.A.C. 7:28-1 through N.J.A.C. 7:28-13" after "of this Chapter"

6. 10 C.F.R. 19.20(a), delete "20 and" and add "and N.J.A.C. 7:28-1 through N.J.A.C. 7:28-13" after "of this Chapter"

7. 10 C.F.R. 30.32(a), replace the first sentence with "Application for specific State licenses and renewals shall be filed with Department on forms available from the Department."

8. 10 C.F.R. 30.35(c)(5), replace "10 CFR part 20, Appendix G" with "N.J.A.C. 7:28-11.10"

9. 10 C.F.R. 30.35(c)(5), replace "10 CFR part 20" with "N.J.A.C. 7:28-12"

10. 10 C.F.R. 30.35(g)(3)(i), replace "10 CFR 20.1003" with "N.J.A.C. 7:28-1.4"

11. 10 C.F.R. 30.35(g)(3)(iii), replace "10 CFR 20.2108" with "N.J.A.C. 7:28-8.11"

12. 10 C.F.R. 30.35(g)(3)(iv), replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12"

13. 10 C.F.R. 30.35(g)(3)(iv), replace "10 CFR 20.2002" with "N.J.A.C. 7:28-11.7"

14. 10 C.F.R. 30.36(j)(2), replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12"

15. 10 C.F.R. 30.36(k)(3)(i), replace "10 CFR part 20, subpart E" with

"N.J.A.C. 7:28-12"

16. 10 C.F.R. 30.36(k)(3)(ii), replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12"

17. 10 C.F.R. 30.37(a), replace the wording of (a) with "Application for renewal of a specific State license shall be filed with the Department on forms available from the Department."

18. 10 C.F.R. 30.38, Change title of section from "Application for amendment of licenses" to "Amendment of licenses." Replace "Applications for amendment of a license shall be filed on Form NRC-313 in accordance with 30.32" from the beginning of the sentence, up to the wording "and shall specify," with "Requests to amend a license shall be shall be submitted in letter form to the Department"

19. 10 C.F.R. 30.50(b)(1)(ii), replace "appendix B of Sec. Sec. 20.1001-20.2401 of 10 CFR part 20" with "N.J.A.C. 7:28-6.1"

20. 10 C.F.R. 30.50(b)(4)(i), replace "appendix B of Sec. Sec. 20.1001-20.2401 of 10 CFR part 20" with "N.J.A.C. 7:28-6.1"

21. 10 C.F.R 30.50(c)(2), replace "appropriate NRC Regional office listed in appendix D to part 20 of this Chapter" with "Department"

22. 10 C.F.R. 30.51(d), replace "appropriate NRC Regional Office" with "Department"

23. 10 C.F.R. 30.51(d)(1), replace "Sec. Sec. 20.2002 (including burials authorized before January 28, 1981), 20.2003, 20.2004, 20.2005" with "N.J.A.C. 7:28-11.7, 11.2, 11.6, 11.9"

24. 10 C.F.R. 30.51(d)(2), replace "Sec. 20.2103(b)(4)" with N.J.A.C. 7:28-8.3"

25. 10 C.F.R. 30.51(e)(1), replace "Sec. Sec. 20.2002 (including burials

authorized before January 28, 1981), 20.2003, 20.2004, 20.2005" with "N.J.A.C. 7:28-11.7, 11.2, 11.6, 11.9"

26. 10 C.F.R. 30.51(e)(2), replace "Sec. 20.2103(b)(4)" with N.J.A.C. 7:28-8.3"

27. 10 C.F.R. 30.55(c), replace "appropriate NRC Regional Office listed in appendix D of part 20" with "Department"

28. 10 C.F.R. 30, Appendix B to Part 30—Quantities of Licensed Material Requiring Labeling, end Note, replace "Sec. 20.303" with "N.J.A.C. 7:28-11.2"

(d) For those facilities whose radioactive materials are solely licensed by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation" available from the Department.

(e) Those facilities who possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) Except for any reports stipulated by 10 C.F.R. 30.21(c), 30.34(d), (e)(1), (e)(3), 30.41(a)(6) and 30.55 related to areas that cannot be relinquished to New Jersey by the NRC, all required reports shall be forwarded to the Department.

SUBCHAPTER 52. GENERAL DOMESTIC LICENSES FOR BYPRODUCT MATERIAL

7:28-52.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 C.F.R. Part 31, as supplemented or amended, the Atomic Energy Act of 1954, as amended, title II of the Energy Reorganization Act of 1974, and regulations, orders, and licenses there under.

(b) The following provisions of 10 C.F.R. Part 31 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 C.F.R. Part 31.4, Information collection requirements: OMB approval

(c) The following provisions of 10 C.F.R. Part 30 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission" as used in the provisions of the Code of Federal Regulations which are incorporated by reference, means the New Jersey Department of Environmental Protection, except when specifically noted, then it means the United States Nuclear Regulatory Commission.

2. 10 C.F.R. 31.2, delete "20," and add "N.J.A.C. 7:28-1 through N.J.A.C. 7:28-13" after "of this chapter[1]"

3. 10 C.F.R. 31.5(c)(5), replace "Sec. 20.1402" with "N.J.A.C. 7:28-12"

4. 10 C.F.R. 31.5(c)(9)(i), replace "20.2201, and 20.2202" with "N.J.A.C. 7:28-13.1 and 13.2"

5. 10 C.F.R. 31.5(c)(10), replace "Sec. Sec. 20.2201, and 20.2202 of this chapter" with "N.J.A.C. 7:28-13.1 and 13.2"

6. 10 C.F.R. 31.5(c)(10), delete "20," and add "N.J.A.C. 7:28-1 through 7:28-13" after "of this chapter"

7. 10 C.F.R. 31.5(c)(14), replace "Director of Nuclear Material Safety and Safeguards, ATTN: GLTS, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001" with "Department"

8. 10 C.F.R. 31.7(b), delete "20," and add "N.J.A.C. 7:28-1 through 7:28-13" after "of this chapter"

9. 10 C.F.R. 31.7(b), replace "Sec. Sec. 20.2201, and 20.2202" with "N.J.A.C. 7:28-13.1 and 13.2"

10. 10 C.F.R. 31.8(c), delete "20," and add ", as well as N.J.A.C. 7:28-1 through 7:28-13" after the second "of this chapter"

11. 10 C.F.R. 31.10(b)(1), replace "Sec. 20.2001" with "N.J.A.C. 7:28-11.1"

12. 10 C.F.R. 31.10(b)(3), delete "20," and add "and N.J.A.C. 7:28-1 through N.J.A.C. 7:28-13,"

13. 10 C.F.R. 31.10(b)(3), replace "Sec. Sec. 20.2001, 20.2201, and 20.2202 of this chapter" with "N.J.A.C. 7:28-11.1, 13.1 and 13.2"

14. 10 C.F.R. 31.11(c)(5), replace "Sec. 20.2001" with "N.J.A.C. 7:28-11.1"

15. 10 C.F.R. 31.11(f), delete "20," and add "and N.J.A.C. 7:28-1 through 7:28-27.13" after "of this chapter"

16. 10 C.F.R. 31.11(f), replace "Sec. Sec. 20.2001, 20.2201, and 20.2202" with "N.J.A.C. 7:28-11.1, 13.1 and 13.2"

(d) For those facilities whose radioactive materials are solely licensed by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation" available from the Department.

(e) Those facilities who possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) All required reports shall be forwarded to the Department.

SUBCHAPTER 53. SPECIFIC DOMESTIC LICENSES TO MANUFACTURE OR TRANSFER CERTAIN ITEMS CONTAINING BYPRODUCT MATERIAL

7:28-53.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 C.F.R. Part 32, as supplemented or amended, the Atomic Energy Act of 1954, as amended, title II of the Energy Reorganization Act of 1974, and regulations, orders, and licenses thereunder.

(b) The following provisions of 10 C.F.R. Part 32 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 C.F.R. 32.8, Information collection requirements: OMB approval
2. 10 C.F.R. 32.14, Certain items containing byproduct material; requirements for license to apply or initially transfer
3. 10 C.F.R. 32.15, Same: Quality assurance, prohibition of transfer, and labeling
4. 10 C.F.R. 32.16, Certain items containing byproduct material: Records and reports of transfer
5. 10 C.F.R. 32.18, Manufacture, distribution and transfer of exempt quantities of byproduct material: Requirements for license
6. 10 C.F.R. 32.19, Same: Conditions of licenses
7. 10 C.F.R. 32.20, Same: Records and material transfer reports

8. 10 C.F.R. 32.21, Radioactive drug: Manufacture, preparation or transfer for commercial distribution of capsules containing carbon-14 urea each for "in vivo" diagnostic use for humans to persons exempt from licensing; Requirements for a license

9. 10 C.F.R. 32.22, Self-luminous products containing tritium, krypton-85 or promethium 147: Requirements for license to manufacture, process, produce, or initially transfer

10. 10 C.F.R. 32.23, Same: Safety criteria

11. 10 C.F.R. 32.25, Conditions of licenses issued under Part 32.22: Quality control, labeling, and reports of transfer

12. 10 C.F.R. 32.26, Gas and aerosol detectors containing byproduct material: Requirements for license to manufacture, process, produce, or initially transfer

13. 10 C.F.R. 32.27, Same: Safety criteria

14. 10 C.F.R. 32.28, Same: Table of organ doses

15. 10 C.F.R. 32.29, Conditions of licenses issued under Part 32.26: Quality control, labeling, and reports of transfer

16. 10 C.F.R. 32.40, Schedule A-Prototype tests for automobile lock illuminators

17. 10 C.F.R. 32.210, Registration of product information

(c) The following provisions of 10 C.F.R. Part 30 are incorporated by reference with the specified changes:

1. 10 C.F.R. 32.52(a), replace "Director of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001," with "New Jersey Department of Environmental Protection, Radioactive Materials Section, P.O. Box 415, Trenton, New Jersey 08625-0415."

2. 10 C.F.R. 32.56, replace "Director of Nuclear Material Safety and

Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001," with "New Jersey Department of Environmental Protection, Radioactive Materials Section, P.O. Box 415, Trenton, New Jersey 08625-0415."

3. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission" as used in the provisions of the Code of Federal Regulations which are incorporated by reference, means the New Jersey Department of Environmental Protection, except when specifically noted, then it means the United States Nuclear Regulatory Commission.

4. 10 C.F.R. 32.2, in the definition of "Nationally tracked source," replace "part 20 of this Chapter" with "10 CFR part 20 as incorporated by reference in N.J.A.C. 7:28-1.4"

5. 10 C.F.R. 32.51(a)(2)(ii), replace "Sec. 20.1201(a) of this chapter" with "N.J.A.C. 7:28-6.1"

6. 10 C.F.R. 32.51(a)(4), replace "Sec. 20.1901 of this chapter" with "N.J.A.C. 7:28-10.1"

7. 10 C.F.R. 32.51(a)(5), replace "Sec. 20.1901 of this chapter" with "N.J.A.C. 7:28-10.1"

8. 10 C.F.R. 32.51(c), replace "Sec. 20.1201(a) of this chapter" with "N.J.A.C. 7:28-6.1"

9. 10 C.F.R. 32.51a(a)(2), add "and" between "31.2," and "30.51"

10. 10 C.F.R. 32.51a(a)(2), delete "20.2201, and 20.2202" and add "and N.J.A.C. 7:28-13.1 and 13.2" after "of this chapter"

11. 10 C.F.R. 32.51a(b)(1), add "and" between "31.2" and ""30.51" in both locations

12. 10 C.F.R. 32.51a(b)(1), delete "20.2201, and 20.2202" from both

locations and add "and N.J.A.C. 7:28-13.1 and 13.2" after "of this chapter" in both locations

13. 10 C.F.R. 32.54(a), replace "Sec. 20.1901 of this chapter" with "N.J.A.C. 7:28-10.1"

14. 10 C.F.R. 32.61(d), replace "Sec. 20.1901(a) of this chapter" with "N.J.A.C. 7:28-10.1"

15. 10 C.F.R. 32.71(c)(2), replace "Sec. 20.1901(a) of this chapter" with "N.J.A.C. 7:28-10.1"

16. 10 C.F.R. 32.71(e), replace "Sec. 20.2001" with "N.J.A.C. 7:29-11.1"

(d) For those facilities whose radioactive materials are solely licensed by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation" available from the Department.

(e) Those facilities who possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) Except for any reports stipulated by 10 C.F.R. 32.14, 32.15, 32.16, 32.18 through 32.23, 32.25 through 32.29, and 32.40 related to areas that cannot be relinquished to New Jersey by the NRC, all required reports shall be forwarded to the Department.

SUBCHAPTER 54. SPECIFIC DOMESTIC LICENSES OF BROAD SCOPE FOR BYPRODUCT MATERIAL

7:28-54.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 C.F.R. Part 33, as supplemented or amended, the Atomic Energy Act of 1954, as amended, title II of the Energy Reorganization Act of 1974, and regulations, orders, and licenses thereunder.

(b) The following provisions of 10 C.F.R. Part 33 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 C.F.R. Part 33.8, Information collection requirements: OMB approval

(c) The following provisions of 10 C.F.R. Part 30 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission" as used in the provisions of the Code of Federal Regulations which are incorporated by reference, means the New Jersey Department of Environmental Protection, except when specifically noted, then it means the United States Nuclear Regulatory Commission.

2. 10 C.F.R. 33.12, replace the sentence with "Application for specific State licenses and renewals shall be filed with Department on forms available from the Department."

(d) For those facilities whose radioactive materials are solely licensed by the

Department, NRC Form 3, "Notice to Employees" shall mean the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation" available from the Department.

(e) Those facilities who possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) All required reports shall be forwarded to the Department.

SUBCHAPTER 55. MEDICAL USE OF BYPRODUCT MATERIAL

7:28-55.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 C.F.R. Part 35, as supplemented or amended, the Atomic Energy Act of 1954, as amended, title II of the Energy Reorganization Act of 1974, and regulations, orders, and licenses thereunder.

(b) The following provisions of 10 C.F.R. Part 35 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 C.F.R. Part 35.8, Information collection requirements: OMB approval

(c) The following provisions of 10 C.F.R. Part 35 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission" as used in the provisions of the Code of Federal Regulations which are incorporated by reference, means the New Jersey Department of Environmental Protection, except when specifically noted, then it means the United States Nuclear Regulatory Commission.

2. 10 C.F.R. 35.1, delete "20," and add "and N.J.A.C. 7:28-1 through N.J.A.C. 7:28-13" after "of this chapter"

3. 10 C.F.R. 35.12(b)(1), at the start of the sentence, replace "Filing an original and one copy of NRC Form 313, "Application for Material License," with "Filing an original application for a specific State license with the Department on forms available from

the Department,".

4. 10 C.F.R 35.12(c), delete the wording "amendment or."

5. 10 C.F.R. 35.12(c)(1), delete the wording "and one copy" and "either."

6. 10 C.F.R. 35.12(c)(1)(i), delete the wording "NRC Form 313, "Application for Material License,"; or" and replace with "an initial application or renewal certification form available from the Department."

7. 10 C.F.R. 35.12(c)(1)(ii), delete wording "or renewal"

8. 10 C.F.R. 35.12(d), create new wording for (d) to state "A request for an amendment must be made by submitting a letter requesting the amendment and relevant supporting documentation as required by 35.610, 35.642, 35.643, and 35.645, as applicable."

9. 10 C.F.R. 35.12(d), change existing citation to 35.12(e).

10. 10 C.F.R. 35.12(e), change existing citation to 35.12(f).

11. 10 C.F.R. 35.18(a)(1), delete the wording "NRC Form 313 "Application for Material License," and replace with "an original application for a specific State license"

12. 10 C.F.R. 35.24(a), replace "Sec. 20.1101 of this chapter" with "N.J.A.C. 7:28-6.11"

13. 10 C.F.R. 35.61(a), replace "10 CFR Part 20" with "N.J.A.C. 7:28-7.1"

14. 10 C.F.R. 35.63(b)(2)(i), delete the wording.

15. 10 C.F.R. 35.63(b)(2)(ii), change existing citation to 35.63(b)(2)(i).

16. 10 C.F.R. 35.70(a), replace "Part 20 of this chapter" with "N.J.A.C. 7:28-7"

17. 10 C.F.R. 35.80(a)(4), replace "Part 20 of this chapter" with "N.J.A.C. 7:28-7"

18. 10 C.F.R. 35.310(a)(2)(i), replace "Sec. 20.1301(a)(1) of this chapter" with "N.J.A.C. 7:28-6.8"

19. 10 C.F.R. 35.310(a)(2)(ii), replace "Sec. 20.1301(c) of this chapter" with "N.J.A.C. 7:28-6.8"

20. 10 C.F.R. 35.410(a)(4)(i), replace "Sec. 20.1301(a)(1) of this chapter" with "N.J.A.C. 7:28-6.8"

21. 10 C.F.R. 35.410(a)(4)(ii), replace "Sec. 20.1301(c) of this chapter" with "N.J.A.C. 7:28-6.8"

22. 10 C.F.R. 35.652(a), replace "Sec. 20.1501 of this chapter" with "N.J.A.C. 7:28-7.1"

23. 10 C.F.R. 35.3045(c), replace "NRC Operations Center" with "Department"

24. 10 C.F.R. 35.3047(c), replace "NRC Operations Center" with "Department"

25. 10 C.F.R. 35.3047(d), replace "appropriate NRC Regional Office listed in Sec. 30.6 of this chapter" with "Department"

26. 10 C.F.R. 35.3067, replace "appropriate NRC Regional Office listed in Sec. 30.6 of this chapter" with "Department" and delete ", with a copy to the Director, Office of Nuclear Material Safety and Safeguards"

(d) For those facilities whose radioactive materials are solely licensed by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation" available from the Department.

(e) Those facilities who possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) All required reports shall be forwarded to the Department.

SUBCHAPTER 56. LICENSES AND RADIATION SAFETY REQUIREMENTS FOR IRRADIATORS

7:28-56.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 C.F.R. Part 36, as supplemented or amended, the Atomic Energy Act of 1954, as amended, title II of the Energy Reorganization Act of 1974, and regulations, orders, and licenses thereunder.

(b) The following provisions of 10 C.F.R. Part 36 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 C.F.R. Part 36.8, Information collection requirements: OMB approval

(c) The following provisions of 10 C.F.R. Part 36 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission" as used in the provisions of the Code of Federal Regulations which are incorporated by reference, means the New Jersey Department of Environmental Protection, except when specifically noted, then it means the United States Nuclear Regulatory Commission.

2. 10 C.F.R. 36.1(a), delete "20," and add "N.J.A.C. 7:28-1 through N.J.A.C. 7:28-13" after "of this chapter"

3. 10 C.F.R. 36.11, replace "...Form NRC 313, "Application for Material License," with "...forms available from the Department," delete "and one copy," and replace

"appropriate NRC Regional Office listed in appendix D to part 20 of this chapter" with "Department"

4. 10 C.F.R. 36.23(g), replace "10 CFR 20.1902" in both locations with "N.J.A.C. 7:28-10"

5. 10 C.F.R. 36.55(a), replace "10 C.F.R. 20.1501(c)" with "N.J.A.C. 7:28-7.1"

6. 10 C.F.R. 36.57(d), replace "10 CFR part 20, table 2, column 2 or table 3 of appendix B" with "N.J.A.C. 7:28-6.1 and the appendix to 7:28-11"

7. 10 C.F.R. 36.59(c), replace "table 2, column 2, appendix B to part 20" with "Table 1, Column 2 of the appendix to N.J.A.C. 7:28-11"

(d) For those facilities whose radioactive materials are solely licensed by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation" available from the Department.

(e) Those facilities who possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) All required reports shall be forwarded to the Department.

SUBCHAPTER 57. LICENSES AND RADIATION SAFETY REQUIREMENTS FOR WELL LOGGING

7:28-57.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 C.F.R. Part 39, as supplemented or amended, the Atomic Energy Act of 1954, as amended, title II of the Energy Reorganization Act of 1974, and regulations, orders, and licenses thereunder.

(b) The following provisions of 10 C.F.R. Part 39 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 C.F.R. Part 39.8, Information collection requirements: OMB approval

(c) The following provisions of 10 C.F.R. Part 39 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission" as used in the provisions of the Code of Federal Regulations which are incorporated by reference, means the New Jersey Department of Environmental Protection, except when specifically noted, then it means the United States Nuclear Regulatory Commission.

2. 10 C.F.R. 39.1(a), delete "20," and add "and N.J.A.C. 7:28-1 through N.J.A.C. 7:28-13" after "of this chapter"

3. 10 C.F.R. 39.11, replace "Form NRC 313, "Application for Material License." with "forms available from the Department" and replace "appropriate NRC

Regional Office listed in appendix D of part 20 of this chapter" with "Department"

4. 10 C.F.R. 39.15(a)(5)(iii)(B), replace "Sec. 20.1901(a)" with "N.J.A.C. 7:28-10.1"

5. 10 C.F.R. 39.31(a)(1), replace "Sec. 20.1901(a)" with "N.J.A.C. 7:28-10.1"

6. 10 C.F.R. 39.31(a)(2), replace "Sec. 20.1901(a)" with "N.J.A.C. 7:28-10.1"

7. 10 C.F.R. 39.33(a), replace "part 20 of this chapter" with "N.J.A.C. 7:28-7.1"

8. 10 C.F.R. 39.35(d)(2), replace "appropriate NRC Regional Office listed in appendix D of part 20 of this chapter" with "Department"

9. 10 C.F.R. 39.61(a)(2)(i), delete "20," and add "and N.J.A.C. 7:28-1 through N.J.A.C. 7:28-13" after "of this chapter"

10. 10 C.F.R. 39.61(b)(1), delete "s" from "parts," delete "and 20," and add "and N.J.A.C. 7:28-1 through N.J.A.C. 7:28-13"

11. 10 C.F.R. 39.63(h), replace "Sec. 20.1906 of this chapter" with "N.J.A.C. 7:28-10.11".

12. 10 C.F.R. 39.71(b), replace "Sec.20.1003 of this chapter" with "N.J.A.C. 7:28-1.4"

13. 10 C.F.R. 39.73(a), delete "20," and add "and N.J.A.C. 7:28-1 through N.J.A.C. 7:28-13" after "regulations"

14. 10 C.F.R. 39.77 (b), delete "Sec. Sec. 20.2201-20.2202," and add "and N.J.A.C. 7:28-13.1 and 13.2" after "of this chapter"

(d) For those facilities whose radioactive materials are solely licensed by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's form RPP-

14, "Notice to Employees, Standards for Protection Against Radiation" available from the Department.

(e) Those facilities who possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) Except for any reports stipulated by 10 C.F.R. 20.2203 related to areas that cannot be relinquished to New Jersey by the NRC, all required reports shall be forwarded to the Department.

SUBCHAPTER 58. DOMESTIC LICENSING OF SOURCE MATERIAL

7:28-58.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 C.F.R. Part 40, as supplemented or amended, under the Atomic Energy Act of 1954, as amended, title II of the Energy Reorganization Act of 1974, and regulations, orders, and licenses thereunder.

(b) The following provisions of 10 C.F.R. Part 40 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 C.F.R. Part 40.2a, Coverage of inactive tailings sites
2. 10 C.F.R. Part 40.8, Information collection requirements: OMB approval
3. 10 C.F.R. Part 40.12(b), Carriers
4. 10 C.F.R. Part 40.23, General license for carriers of transient shipments of natural uranium other than in the form of ore or ore residue
5. 10 C.F.R. Part 40.26, General license for possession and storage of byproduct material as defined in this part
6. 10 C.F.R. Part 40.27, General license for custody and long-term care of residual radioactive material disposal sites
7. 10 C.F.R. Part 40.28, General license for custody and long-term care of uranium or thorium byproduct materials disposal sites
8. 10 C.F.R. Part 40.31(j), (k), (l), Application for specific licenses
9. 10 C.F.R. Part 40.32(d), (e), (g), General requirements for issuance of

specific licenses

10. 10 C.F.R. Part 40.33, Issuance of a license for a uranium enrichment facility

11. 10 C.F.R. Part 40.38, Ineligibility of certain applicants

12. 10 C.F.R. Part 40.64, Reports

13. 10 C.F.R. Part 40.65, Effluent monitoring reporting requirements

14. 10 C.F.R. Part 40.66, Requirements for advance notice of export shipments of natural uranium

15. 10 C.F.R. Part 40.67, Requirement for advance notice for importation of natural uranium from countries that are not party to the Convention on the Physical Protection of Nuclear Material

(c) The following provisions of 10 C.F.R. Part 40 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission" as used in the provisions of the Code of Federal Regulations which are incorporated by reference, means the New Jersey Department of Environmental Protection, except when specifically noted, then it means the United States Nuclear Regulatory Commission.

2. 10 C.F.R. 40.22(b), delete ", 20," and add "and N.J.A.C. 7:28-1 through N.J.A.C. 7:28-13" after "of this chapter"

3. 10 C.F.R. 40.25(c)(2), replace "Director, Division of Industrial and Medical Nuclear Safety, with a copy to the Regional Administrator of the appropriate U.S. Nuclear Regulatory Commission Regional Office listed in appendix D of part 20 of this chapter" with "Department"

4. 10 C.F.R. 40.25(d)(4), replace "Director, Division of Industrial and

Medical Nuclear Safety, with a copy to the Regional Administrator of the appropriate U.S. Nuclear Regulatory Commission Regional Office listed in appendix D of part 20 of this chapter" with "Department"

5. 10 C.F.R. 40.25(e), delete ", 20" and add "and N.J.A.C. 7:28-1 through 7:28-13" after "of this chapter"

6. 10 C.F.R. 40.31(a), replace "in duplicate on NRC Form 313, "Application for Material License" with "forms available from the Department".

7. 10 C.F.R. 40.34(a)(2), replace "Sec. 20.1201(a)" with "N.J.A.C. 7:28-6.1"

8. 10 C.F.R. 40.36(f)(3)(i), replace "10 CFR 20.1003" with "N.J.A.C. 7:28-1.4"

9. 10 C.F.R. 40.36(f)(3)(iii), replace "10 CFR 20.2108" with "N.J.A.C. 7:28-8.11"

10. 10 C.F.R. 40.36(f)(3)(iv), replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12" and replace "10 CFR 20.2002" with "N.J.A.C. 7:28-11.7"

11. 10 C.F.R. 40.42(j)(2), replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12"

12. 10 C.F.R. 40.42(k)(3)(i), replace "10 CFR part 20, subpart E" with "N.J.SA.C. 7:28-12"

13. 10 C.F.R. 40.42(k)(3)(ii), replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12"

14. 10 C.F.R. 40.43(a), replace "NRC Form 313" with "forms available from the Department".

15. 10 C.F.R. 40.60(b)(1)(ii), replace "appendix B of Sec. Sec. 20.1001-20.2401 of 10 CFR part 20" with "N.J.A.C. 7:28-6.1"

16. 10 C.F.R. 40.60(b)(4)(i), replace "appendix B of Sec. Sec. 20.1001-

20.2401 of 10 CFR part 20" with "N.J.A.C. 7:28-6.1"

17. 10 C.F.R. 40.60(c)(2), replace "NRC's Document Control Desk" with "Department" and replace "appropriate NRC regional office listed in appendix D to part 20 of this chapter" with "Department"

18. 10 C.F.R. 40.61(d)(1), replace "Sec. 20.2002, 20.2003, 20.2004, 20.2005" with "N.J.A.C. 7:28-11.7, 11.2, 11.6, 11.9"

19. 10 C.F.R. 40.61(d)(2), replace "Sec. 20.2103(b)(4)" with "N.J.A.C. 7:28-8.3"

20. 10 C.F.R. 40.61(e)(1), replace "Sec. 20.2002, 20.2003, 20.2004, 20.2005" with "N.J.A.C. 7:28-11.7, 11.2, 11.6, 11.9"

21. 10 C.F.R. 40.61(e)(2), replace "Sec. 20.2103(b)(4)" with "N.J.A.C. 7:28-8.3"

(d) For those facilities whose radioactive materials are solely licensed by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation" available from the Department.

(e) Those facilities who possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) Except for any reports stipulated by 10 C.F.R. 40.2a, 40.12(b), 40.23, 40.26-40.28, 40.31(j),(k),(l), 40.32(e), 40.33, 40.38, 40.41(d), (e)(1), (e)(3), (g), 40.51(b)(6), 40.64-40.67, and Appendix A to 10 C.F.R. 40, related to areas that cannot be relinquished to New Jersey by the NRC, all required reports shall be forwarded to the Department.

SUBCHAPTER 59. LICENSING REQUIREMENTS FOR LAND DISPOSAL OF RADIOACTIVE WASTE

7:28-59.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 C.F.R. Part 61, as supplemented or amended, under the Atomic Energy Act of 1954, as amended, title II of the Energy Reorganization Act of 1974, and regulations, orders, and licenses thereunder.

(b) The following provisions of 10 C.F.R. Part 61 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 C.F.R. Part 61.4, Communications
2. 10 C.F.R. Part 61.8, Information collection requirements: OMB approval
3. 10 C.F.R. Part 61.16, Other information
4. 10 C.F.R. Part 61.23(i), (j), Standards for issuance of a license

(c) The following provisions of 10 C.F.R. Part 40 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission" as used in the provisions of the Code of Federal Regulations which are incorporated by reference, means the New Jersey Department of Environmental Protection, except when specifically noted, then it means the United States Nuclear

Regulatory Commission.

2. 10 C.F.R. 61.1(a), replace "part 20 of this chapter" with "N.J.A.C. 7:28-11"

3. 10 C.F.R. 61.1(b)(3), replace "part 20 of this chapter" with "N.J.A.C. 7:28-11"

4. 10 C.F.R. 61.12(k), replace "part 20 of this chapter" with "N.J.A.C. 7:28-6"

5. 10 C.F.R. 61.13(c), replace "part 20 of this chapter" with "N.J.A.C. 7:28-6"

6. 10 C.F.R. 61.23(d), replace "part 20 of this chapter" with "N.J.A.C. 7:28-6"

7. 10 C.F.R. 61.52(a)(6), replace "Sec. Sec. 20.1301 and 20.1302 of this chapter" with "N.J.A.C. 7:28-6.8 and 6.9"

8. 10 C.F.R. 61.80(i)(1), delete "to the Director of the Division of Waste Management in the NRC's Office of Nuclear Material Safety and Safeguards," and replace "with a copy to the appropriate NRC Regional Office shown in appendix D to part 20 of this chapter" with "to the Department"

9. 10 C.F.R. 61.80(l)(1)(i), replace "10 CFR part 20, appendix G" with "as is incorporated by reference in N.J.A.C. 7:28-11.10"

(d) For those facilities whose radioactive materials are solely licensed by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation" available from the Department.

(e) Those facilities who possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the

Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) Except for any reports stipulated by 10 C.F.R. 61.16 and 61.23(i-j), related to areas that cannot be relinquished to New Jersey by the NRC, all required reports shall be forwarded to the Department.

SUBCHAPTER 60. DOMESTIC LICENSING OF SPECIAL NUCLEAR MATERIAL

7:28-60.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 C.F.R. Part 70, as supplemented or amended, under the Atomic Energy Act of 1954, as amended, title II of the Energy Reorganization Act of 1974, and regulations, orders, and licenses thereunder.

(b) The following provisions of 10 C.F.R. Part 70 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 C.F.R. Part 70.1(c), (d) and (e), Purpose
2. 10 C.F.R. Part 70.5, Communications
3. 10 C.F.R. Part 70.8, Information collection requirements: OMB approval
4. 10 C.F.R. Part 70.13, Department of Defense
5. 10 C.F.R. Part 70.14, Foreign military aircraft
6. 10 C.F.R. Part 70.20a, General license to possess special nuclear material for transport
7. 10 C.F.R. Part 70.20b, General license for carriers of transient shipments of formula quantities of strategic special nuclear material, special nuclear material of moderate strategic significance, special nuclear material of low strategic significance, and irradiated reactor fuel
8. 10 C.F.R. Part 70.21(a)1, (c), (f), (g), (h), Filing

9. 10 C.F.R. Part 70.22(b), (c), (f), (g), (h), (i), (j), (k), (l), (m), (n), Contents of application

10. 10 C.F.R. Part 70.23(a)(6)-(a)(12), (b), Requirements for the approval of applications

11. 10 C.F.R. Part 70.23a, Hearing required for uranium enrichment facility

12. 10 C.F.R. Part 70.24, Criticality accident requirements

13. 10 C.F.R. Part 70.25(a), Financial assurance and recordkeeping for decommissioning

14. 10 C.F.R. Part70.31(c), (d), (e), Issuance of license

15. 10 C.F.R. Part 70.32(a)(1), (a)(4)-(a)(7), (b)(1), (b)(3), (b)(4), (c)-(k), Conditions of licenses

16. 10 C.F.R. Part.70.37, Disclaimer of warranties

17. 10 C.F.R. Part 70.40, Ineligibility of certain applicants

18. 10 C.F.R. Part 70.42(b)(6), Transfer of special nuclear material

19. 10 C.F.R. Part 70.44, Creditor regulations

20. 10 C.F.R. Part 70.51(c)-(e), Material balance, inventory, and records requirements

21. 10 C.F.R. Part 70.52, Reports of accidental criticality or loss or theft or attempted theft of special nuclear material

22. 10 C.F.R. Part 70.53, Material status reports

23. 10 C.F.R. Part 70.54, Nuclear material transfer reports

24. 10 C.F.R. Part 70.55(c),'Inspections

25. 10 C.F.R. Part 70.56(c)-(d), Tests

26. 10 C.F.R. Part 70.57, Measurement control program for special nuclear material accounting and control

27. 10 C.F.R. Part 70.58, Fundamental nuclear material controls

28. 10 C.F.R. Part 70.59, Effluent monitoring reporting requirements

29. 10 C.F.R. Part 70.60, Applicability

30. 10 C.F.R. Part 70.61, Performance requirements

31. 10 C.F.R. Part 70.62, Safety program and integrated safety analysis

32. 10 C.F.R. Part 70.64, Requirements for new facilities or new processes at existing facilities

33. 10 C.F.R. Part 70.65, Additional content of application

34. 10 C.F.R. Part 70.66, Additional requirements for approval of license application

35. 10 C.F.R. Part 70.72, Facility changes and change process

36. 10 C.F.R. Part 70.74, Additional reporting requirements

37. 10 C.F.R. Part 70.76, Backfitting

38. 10 C.F.R. Part 70.82, Suspension and operation in war or national emergency

(c) The following provisions of 10 C.F.R. Part 70 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission" as used in the provisions of the Code of Federal Regulations which are incorporated by reference, means the New Jersey Department of Environmental Protection, except when specifically noted, then it means the United States Nuclear Regulatory Commission.

2. 10 C.F.R. 70.19(c), delete ", 20," and add "and N.J.A.C. 7:28-1 through 7:28-13"

3. 10 C.F.R. 70.25(g)(3)(i), replace "10 CFR 20.1003" with "N.J.A.C. 7:28-

1.4"

4. 10 C.F.R. 70.25(g)(3)(iii), replace "10 CFR 20.2108" with "N.J.A.C. 7:28-8.11", replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12" and replace "10 CFR 20.2002" with "N.J.A.C. 7:28-11.7"

5. 10 C.F.R. 70.38(j)(2), replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12"

6. 10 C.F.R. 70.38(k)(3)(i), replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12"

7. 10 C.F.R. 70.38(k)(3)(ii), replace "10 CFR part 20, subpart E" with "N.J.A.C. 7:28-12"

8. 10 C.F.R. 70.50(b)(1)(ii), replace "Appendix B of Sec. Sec. 20.1001-20.2401 of 10 CFR part 20" with "N.J.A.C. 7:28-6"

9. 10 C.F.R. 70.50(b)(4)(i), replace "appendix B of Sec. Sec. 20.2001-20.2401 of 10 CFR part 20" with "N.J.A.C. 7:28-6"

10. 10 C.F.R. 70.50(c)(2), delete "to the NRC's Document Control Desk," and replace "with a copy to the appropriate NRC regional office listed in appendix D to part 20 of this chapter" with "to the Department"

11. 10 C.F.R. 70.51(a)(1), replace "10 CFR 20.2002, 20.2003, 20.2004, 20.2005" with "N.J.A.C. 7:28-11.7, 11.2, 11.6, 11.9"

12. 10 C.F.R. 70.51(a)(2), replace "10 CFR 20.2103(b)(4)" with "N.J.A.C. 7:28-8.3"

13. 10 C.F.R. 70.51(b)(1), replace "10 CFR 20.2002, 20.2003, 20.2004, 20.2005" with "N.J.A.C. 7:28-11.7, 11.2, 11.6, 11.9"

14. 10 C.F.R. 70.51(b)(2), replace "10 CFR 20.2103(b)(4)" with "N.J.A.C. 7:28-8.3"

(d) For those facilities whose radioactive materials are solely licensed by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation" available from the Department.

(e) Those facilities who possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) Except for any reports stipulated by 10 C.F.R. 70.1(c through e), 70.13, 70.14, 70.20a, 70.20b, 70.21(a)(1), (c), (f), (g), (h), 70.22(b), (c), (f through n), 70.23(a)(6 through 12), 70.23(b), 70.23a, 70.24, 70.25(a), 70.31(c through e), 70.32(a)(1), (a)(4 through 7), (b)(1), (b)(3), (b)(4), (c through k), 70.37, 70.40, 70.42(b)(6), 70.44, 70.51 (c through e), 70.52 through 70.54, 70.55(c)(1 through 3), 70.56(c), (d), 70.57 through 70.62, 70.64 through 70.66, 70.72, 70.74, 70.76 and 70.82, related to areas that cannot be relinquished to New Jersey by the NRC, all required reports shall be forwarded to the Department.

SUBCHAPTER 61. PACKAGING AND TRANSPORTATION OF RADIOACTIVE MATERIAL

7:28-61.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 C.F.R. Part 71, as supplemented or amended, under the Atomic Energy Act of 1954, as amended, title II of the Energy Reorganization Act of 1974, and regulations, orders, and licenses .

(b) The following provisions of 10 C.F.R. Part 71 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 C.F.R. Part 71.1(a), Communications and records
2. 10 C.F.R. Part 71.6, Information collection requirements: OMB approval
3. 10 C.F.R. Part 71.10(b)-(c), Exemptions for low-level material
4. 10 C.F.R. Part 71.13(c)-(d), Previously approved package
5. 10 C.F.R. Part 71.24, General license: Fissile material, limited moderator, controlled shipment
6. 10 C.F.R. Part 71.31, Contents of application
7. 10 C.F.R. Part 71.33, Package description
8. 10 C.F.R. Part 71.35, Package evaluation
9. 10 C.F.R. Part 71.37, Quality assurance
10. 10 C.F.R. Part 71.38, Renewal of a certificate of compliance or quality

assurance program approval

11. 10 C.F.R. Part 71.39, Requirements for additional information

12. 10 C.F.R. Part 71.41, Demonstration of compliance

13. 10 C.F.R. Part 71.43, General standards for all packages

14. 10 C.F.R. Part 71.45, Lifting and tie-down standards for all packages

15. 10 C.F.R. Part 71.51, Additional requirements for Type B packages

16. 10 C.F.R. Part 71.52, Exemption for low-specific-activity (LSA) packages

17. 10 C.F.R. Part 71.55, General requirements for fissile material packages

18. 10 C.F.R. Part 71.59, Standards for arrays of fissile material packages

19. 10 C.F.R. Part 71.61, Special requirements for irradiated nuclear fuel shipments

20. 10 C.F.R. Part 71.63, Special requirements for plutonium shipments

21. 10 C.F.R. Part 71.64, Special requirements for plutonium air shipments

22. 10 C.F.R. Part 71.65, Additional requirements

23. 10 C.F.R. Part 71.71, Normal conditions of transport

24. 10 C.F.R. Part 71.73, Hypothetical accident conditions

25. 10 C.F.R. Part 71.74, Accident conditions for air transport of plutonium

26. 10 C.F.R. Part 71.75, Qualification of special form radioactive material

27. 10 C.F.R. Part 71.77, Qualification of LSA-III material

28. 10 C.F.R. Part 71.101(d)-(e), Quality assurance requirements

(c) The following provisions of 10 C.F.R. Part 40 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S.

Nuclear Regulatory Commission" as used in the provisions of the Code of Federal Regulations which are incorporated by reference, means the New Jersey Department of Environmental Protection, except when specifically noted, then it means the United States Nuclear Regulatory Commission.

2. 10 C.F.R. 71.0(b), delete "20," and add "and N.J.A.C. 7:28-1 through 7:28-13" after "and 73"

3. 10 C.F.R. 71.47(b)(4), replace "10 CFR 20.1502" with "N.J.A.C. 7:28-7.3"

4. 10 C.F.R. 71.89, replace "10 CFR 20.1906(e)" with "N.J.A.C. 7:28-10.11"

5. 10 C.F.R. 71.93(c), replace "Administrator of the appropriate NRC Regional Office listed in appendix A of part 73 of this chapter," with "Department".

6. 10 C.F.R. 71.95, replace "Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555" with "Department".

(d) For those facilities whose radioactive materials are solely licensed by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation" available from the Department.

(e) Those facilities who possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) Except for any reports stipulated by 10 C.F.R. 71.10(b) and (c), 71.13(c) and (d), 71.24, 71.31, 71.33, 71.35, 71.37 through 71.39, 71.41, 71.43, 71.45, 71.51, 71.52, 71.55,

71.59, 71.61, 71.63 through 71.65, 71.71, 71.73 through 71.75, 71.77 and 71.101(d) and (e), related to areas that cannot be relinquished to New Jersey by the NRC, all required reports shall be forwarded to the Department.

SUBCHAPTER 62. EXEMPTIONS AND CONTINUED NRC REGULATORY AUTHORITY IN AGREEMENT STATES AND IN OFFSHORE WATERS UNDER SECTION 274

7:28-62.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 C.F.R. Part 150, as supplemented or amended, under the Atomic Energy Act of 1954, as amended, title II of the Energy Reorganization Act of 1974, and regulations, orders, and licenses .

(b) The following provisions of 10 C.F.R. Part 150 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 C.F.R. Part 150.7, Persons in offshore waters not exempt
2. 10 C.F.R. Part 150.8, Information collection requirements: OMB approval
3. 10 C.F.R. Part 150.10, Persons exempt
4. 10 C.F.R. Part 150.14, Commission regulatory authority for physical protection
5. 10 C.F.R. Part 150.15, Persons not exempt
6. 10 C.F.R. Part 150.15a, Continued Commission authority pertaining to byproduct material
7. 10 C.F.R. Part 150.16, Submission to Commission of nuclear material

transfer reports

8. 10 C.F.R. Part 150.17, Submission to Commission of source material reports

9. 10 C.F.R. Part 150.17a, Compliance with requirements of US/IAEA safeguards agreement

10. 10 C.F.R. Part 150.19, Submission to Commission of tritium reports

11. 10 C.F.R. Part 150.20(a)(1)(ii) & 150.20(a)(1)(iii), Recognition of Agreement State licenses

12. 10 C.F.R. Part 150.21, Transportation of special nuclear material by aircraft

(c) The following provisions of 10 C.F.R. Part 150 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission" as used in the provisions of the Code of Federal Regulations which are incorporated by reference, means the New Jersey Department of Environmental Protection, except when specifically noted, then it means the United States Nuclear Regulatory Commission.

2. 10 C.F.R. 150.4, replace "Executive Director for Operations, U.S. Nuclear Regulatory Commission, Washington, DC 20555" with "Department". Also, delete "Communications and reports may be delivered in person at the Commission's offices at 2120 L Street NW., Washington, DC or at 11555 Rockville Pike, Rockville, MD."

3. 10 C.F.R. 150.20(b), delete ", 20" and add "and N.J.A.C. 7:28-1 through 7:28-13" after "part 34"

(d) For those facilities whose radioactive materials are solely licensed by the

Department, NRC Form 3, "Notice to Employees" shall mean the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation" available from the Department.

(e) Those facilities who possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) Except for any reports stipulated by 10 C.F.R. 150.7, 150.10, 150.14 through 150.17a, 150.19, 150.20(a)(1)(ii and iii) and 150.21, related to areas that cannot be relinquished to New Jersey by the NRC, all required reports shall be forwarded to the Department.

SUBCHAPTER 63. LICENSES FOR INDUSTRIAL RADIOGRAPHY USING SEALED SOURCES AND RADIATION SAFETY REQUIREMENTS FOR SUCH INDUSTRIAL RADIOGRAPHIC OPERATIONS

7:28-63.1 Incorporation by reference

(a) Except as set forth in (b) and (c) below, this subchapter incorporates by reference 10 C.F.R. Part 34, as supplemented or amended, under the Atomic Energy Act of 1954, as amended, title II of the Energy Reorganization Act of 1974, and regulations, orders, and licenses .

(b) The following provisions of 10 C.F.R. Part 34 are not incorporated by reference. If there is a cross reference to a Federal citation specifically entirely excluded from incorporation, then the cross referenced citation is not incorporated by virtue of the cross reference:

1. 10 C.F.R. Part 34.8, Information collection requirements: OMB approval

(c) The following provisions of 10 C.F.R. Part 34 are incorporated by reference with the specified changes:

1. "Commission," "Nuclear Regulatory Commission," "NRC," and "U.S. Nuclear Regulatory Commission" as used in the provisions of the Code of Federal Regulations which are incorporated by reference, means the New Jersey Department of Environmental Protection, except when specifically noted, then it means the United States Nuclear Regulatory Commission.

2. 10 C.F.R. 34.1, delete "20," and add "and N.J.A.C. 7:28-1 through N.J.A.C. 7:28-13" after "of this chapter"

3. 10 C.F.R. 34.3, replace "10 CFR part 20" with "N.J.A.C. 7:28-6"

4. 10 C.F.R. 34.25(a), replace "10 CFR part 20" with "N.J.A.C. 7:28-7"

5. 10 C.F.R. 34.33(a)(1), replace "Sec. 20.1601(a)(1) of this chapter" with "N.J.A.C. 7:28-10.3"

6. 10 C.F.R. 34.42(c)(1), replace "10 CFR part 20 of this chapter" and "10 CFR part 20" with "N.J.A.C. 7:28-6" in both instances

7. 10 C.F.R. 34.42(c)(4), replace "Sec. 20.2203 of this chapter" with "N.J.A.C. 7:28-13.3"

8. 10 C.F.R. 34.43(b)(1), delete "s" in "parts", delete "and 20," and add "N.J.A.C. 7:28-1 through N.J.A.C. 7:28-13," after "of this chapter,"

9. 10 C.F.R. 34.43(c)(1), delete "s" in "parts", delete "and 20," and add "N.J.A.C. 7:28-1 through N.J.A.C. 7:28-13," after "of this chapter,"

10. 10 C.F.R. 34.45(a)(1), replace "10 CFR part 20 of this chapter "Standards for Protection Against radiation"" with "N.J.A.C. 7:28-6"

11. 10 C.F.R. 34.51, replace "10 CFR part 20 of this chapter" with "N.J.A.C. 7:28-1.4(b)"

12. 10 C.F.R. 34.53, replace "Sec. 20.1902(a) and (b) of this chapter" with "N.J.A.C. 7:28-10.2 and 10.3" and replace "Sec. 20.1903 of this chapter" with "N.J.A.C. 7:28-10.9"

13. 10 C.F.R. 34.89(b)(2), delete ", 20," and add "N.J.A.C. 7:28-1 through 7:28-13" after "NRC regulations"

14. 10 C.F.R. 34.101(b), replace "10 CFR 20.2203" with "N.J.A.C. 7:28-13.3"

(d) For those facilities whose radioactive materials are solely licensed by the Department, NRC Form 3, "Notice to Employees" shall mean the Department's form RPP-

14, "Notice to Employees, Standards for Protection Against Radiation" available from the Department.

(e) Those facilities who possess a license from the Department and the NRC for radioactive materials shall post both the NRC's Form 3, "Notice to Employees" and the Department's form RPP-14, "Notice to Employees, Standards for Protection Against Radiation."

(f) All required reports shall be forwarded to the Department.