

(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.

Amended by R.2005 d.156, effective may 16, 2005.
See: 36 N.J.R. 2336(a), 37 N.J.R. 1826(a).

Rewrote (f).

Case Notes

Successors to radium processor which disposed waste product on property were absolute liable to subsequent purchaser of property for damages caused by gamma radiation and radon gas from radium tailings. *T & E Industries, Inc. v. Safety Light Corp.*, 227 N.J.Super. 228, 546 A.2d 570 (A.D.1988), certification granted 117 N.J. 118, 564 A.2d 848, certification granted 117 N.J. 119, 564 A.2d 848, affirmed as modified 123 N.J. 371, 587 A.2d 1249.

Processor is absolutely liable for damages resulting from processing of radium and disposal of its waste product. *T & E Industries, Inc. v. Safety Light Corp.*, 227 N.J.Super. 228, 546 A.2d 570 (A.D.1988), certification granted 117 N.J. 118, 564 A.2d 848, certification granted 117 N.J. 119, 564 A.2d 848, affirmed as modified 123 N.J. 371, 587 A.2d 1249.

Absolute liability for damages resulting from processing of radium and disposal of its waste product is not limited to situations in which processing and disposal interferes with rights of neighboring property owners. *T & E Industries, Inc. v. Safety Light Corp.*, 227 N.J.Super. 228, 546 A.2d 570 (A.D.1988), certification granted 117 N.J. 118, 564 A.2d 848, certification granted 117 N.J. 119, 564 A.2d 848, affirmed as modified 123 N.J. 371, 587 A.2d 1249.

Doctrine of caveat emptor is not defense to absolute liability claim by purchaser against prior landowner for damages unless purchaser knowingly accepts such burden. *T & E Industries, Inc. v. Safety Light Corp.*, 227 N.J.Super. 228, 546 A.2d 570 (A.D.1988), certification granted 117 N.J. 118, 564 A.2d 848, certification granted 117 N.J. 119, 564 A.2d 848, affirmed as modified 123 N.J. 371, 587 A.2d 1249.

7:28-6.2 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 Federal regulations at 10 CFR 35.75, and from the State licensee's disposal of radioactive material into a sanitary sewer system 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 Federal regulations at 10 CFR 35.75, 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 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 35.2, has determined before the visit that it is appropriate.

(d) A registrant or State licensee may apply to the 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 the collective dose.

Repeal and New Rule, R.2005 d.156, effective May 16, 2005.

See: 36 N.J.R. 2336(a), 37 N.J.R. 1826(a).

Section was "Radiation levels outside controlled areas".

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 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 Section 6.1(a) (Exposure of individuals in controlled areas) of this Chapter 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 Section 6.1(a) (Exposure of individuals in controlled areas) of this Chapter. 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 Subchapter 13 (Reports of Thefts and Radiation Incidents) of this Chapter and shall be included in the records required by Subchapter 8 (Records) of this Chapter.

7:28-6.5 Average concentrations

(a) Maximum permissible average concentrations of radioactive materials in air and water shall be as follows:

		Occupational 40-hr. Week	
Radionuclide		Water uc/ml	Air uc/ml
Column		A	B
Actinium 227	(sol.)	6×10^{-5}	2×10^{-12}
	(insol.)	9×10^{-3}	3×10^{-11}
Actinium 228	(sol.)	3×10^{-3}	8×10^{-8}
	(insol.)	3×10^{-3}	2×10^{-8}
Americium 241	(sol.)	10^{-4}	6×10^{-12}
	(insol.)	8×10^{-4}	10^{-10}
Americium 242m	(sol.)	1×10^{-4}	6×10^{-12}
	(insol.)	3×10^{-3}	3×10^{-10}
Americium 242	(sol.)	4×10^{-3}	4×10^{-8}
	(insol.)	4×10^{-3}	5×10^{-8}
Americium 243	(sol.)	10^{-4}	6×10^{-12}
	(insol.)	8×10^{-4}	10^{-10}
Americium 244	(sol.)	1×10^{-1}	4×10^{-6}
	(insol.)	1×10^{-1}	2×10^{-5}
Antimony 122	(sol.)	8×10^{-4}	2×10^{-7}
	(insol.)	8×10^{-4}	10^{-7}
Antimony 124	(sol.)	7×10^{-4}	2×10^{-7}
	(insol.)	7×10^{-4}	2×10^{-8}
Antimony 125	(sol.)	3×10^{-3}	5×10^{-7}
	(insol.)	3×10^{-3}	3×10^{-8}
Argon 37	(imm.)	...	6×10^{-3}
Argon 41	(imm.)	...	2×10^{-6}
Arsenic 73	(sol.)	0.01	2×10^{-6}
	(insol.)	0.01	4×10^{-7}
Arsenic 74	(sol.)	2×10^{-3}	3×10^{-7}
	(insol.)	2×10^{-3}	10^{-7}
Arsenic 76	(sol.)	6×10^{-4}	10^{-7}
	(insol.)	6×10^{-4}	10^{-7}
Arsenic	(sol.)	2×10^{-3}	5×10^{-7}
	(insol.)	2×10^{-3}	4×10^{-7}
Astatine 211	(sol.)	5×10^{-5}	7×10^{-9}
	(insol.)	2×10^{-3}	3×10^{-8}
Barium 131	(sol.)	5×10^{-3}	10^{-6}
	(insol.)	5×10^{-3}	4×10^{-7}
Barium 140	(sol.)	8×10^{-4}	10^{-7}
	(insol.)	7×10^{-4}	4×10^{-8}
Berkelium 249	(sol.)	0.02	9×10^{-10}
	(insol.)	0.02	10^{-7}
Berkelium 250	(sol.)	6×10^{-3}	1×10^{-7}
	(insol.)	6×10^{-3}	1×10^{-6}
Beryllium 7	(sol.)	0.05	6×10^{-6}
	(insol.)	0.05	10^{-6}
Bismuth 206	(sol.)	10^{-3}	2×10^{-7}
	(insol.)	10^{-3}	10^{-7}
Bismuth 207	(sol.)	2×10^{-3}	2×10^{-7}
	(insol.)	2×10^{-3}	10^{-8}
Bismuth 210	(sol.)	10^{-3}	6×10^{-9}
	(insol.)	10^{-3}	6×10^{-9}

Radionuclide		Occupational 40-hr. Week					
		Water uc/ml	Air uc/ml				
Column A		B					
Bismuth 212	(sol.)	0.01	10 ⁻⁷	Cobalt 58m	(sol.)	0.08	2x10 ⁻⁵
	(insol.)	0.01	2x10 ⁻⁷		(insol.)	0.06	9x10 ⁻⁶
Bromine 82	(sol.)	8x10 ⁻³	10 ⁻⁶	Cobalt 58	(sol.)	4x10 ⁻³	8x10 ⁻⁷
	(insol.)	10 ⁻³	2x10 ⁻⁷		(insol.)	3x10 ⁻³	5x10 ⁻⁸
Cadmium 109	(sol.)	5x10 ⁻³	5x10 ⁻⁸	Cobalt 60	(sol.)	10 ⁻³	3x10 ⁻⁷
	(insol.)	5x10 ⁻³	7x10 ⁻⁸		(insol.)	10 ⁻³	9x10 ⁻⁹
Cadmium 115m	(sol.)	7x10 ⁻⁴	4x10 ⁻⁸	Copper 64	(sol.)	0.01	2x10 ⁻⁶
	(insol.)	7x10 ⁻⁴	4x10 ⁻⁸		(insol.)	6x10 ⁻³	10 ⁻⁶
Cadmium 115	(sol.)	10 ⁻³	2x10 ⁻⁷	Curium 242	(sol.)	7x10 ⁻⁴	10 ⁻¹⁰
	(insol.)	10 ⁻³	2x10 ⁻⁷		(insol.)	7x10 ⁻⁴	2x10 ⁻¹⁰
Calcium 45	(sol.)	3x10 ⁻⁴	3x10 ⁻⁸	Curium 243	(sol.)	10 ⁻⁴	6x10 ⁻¹²
	(insol.)	5x10 ⁻³	10 ⁻⁷		(insol.)	7x10 ⁻⁴	10 ⁻¹⁰
Calcium 47	(sol.)	10 ⁻³	2x10 ⁻⁷	Curium 244	(sol.)	2x10 ⁻⁴	9x10 ⁻¹²
	(insol.)	10 ⁻³	2x10 ⁻⁷		(insol.)	8x10 ⁻⁴	10 ⁻¹⁰
Californium 249	(sol.)	10 ⁻⁴	2x10 ⁻¹²	Curium 245	(sol.)	10 ⁻⁴	5x10 ⁻¹²
	(insol.)	7x10 ⁻⁴	10 ⁻¹⁰		(insol.)	8x10 ⁻⁴	10 ⁻¹⁰
Californium 250	(sol.)	4x10 ⁻⁴	5x10 ⁻¹²	Curium 246	(sol.)	10 ⁻⁴	5x10 ⁻¹²
	(insol.)	7x10 ⁻⁴	10 ⁻¹⁰		(insol.)	8x10 ⁻⁴	10 ⁻¹⁰
Californium 251	(sol.)	1x10 ⁻⁴	2x10 ⁻¹²	Curium 247	(sol.)	1x10 ⁻⁴	5x10 ⁻¹²
	(insol.)	8x10 ⁻⁴	1x10 ⁻¹⁰		(insol.)	6x10 ⁻⁴	1x10 ⁻¹⁰
Californium 252	(sol.)	7x10 ⁻⁴	2x10 ⁻¹¹	Curium 248	(sol.)	1x10 ⁻⁵	6x10 ⁻¹³
	(insol.)	7x10 ⁻⁴	10 ⁻¹⁰		(insol.)	4x10 ⁻⁵	1x10 ⁻¹¹
Californium 253	(sol.)	4x10 ⁻³	8x10 ⁻¹⁰	Curium 249	(sol.)	6x10 ⁻²	1x10 ⁻⁵
	(insol.)	4x10 ⁻³	8x10 ⁻¹⁰		(insol.)	6x10 ⁻²	1x10 ⁻⁵
Californium 254	(sol.)	4x10 ⁻⁶	5x10 ⁻¹²	Dysprosium 165	(sol.)	0.01	3x10 ⁻⁶
	(insol.)	4x10 ⁻⁶	5x10 ⁻¹²		(insol.)	0.01	2x10 ⁻⁶
Carbon 14	(sol.)	0.02	4x10 ⁻⁶	Dysprosium 166	(sol.)	10 ⁻³	2x10 ⁻⁷
	(insol.)	...	5x10 ⁻⁵		(insol.)	10 ⁻³	2x10 ⁻⁷
Cerium 141	(sol.)	3x10 ⁻³	4x10 ⁻⁷	Einsteinium 253	(sol.)	7x10 ⁻⁴	8x10 ⁻¹⁰
	(insol.)	3x10 ⁻³	2x10 ⁻⁷		(insol.)	7x10 ⁻⁴	6x10 ⁻¹⁰
Cerium 143	(sol.)	10 ⁻³	3x10 ⁻⁷	Einsteinium 254m	(sol.)	5x10 ⁻⁴	5x10 ⁻⁹
	(insol.)	10 ⁻³	2x10 ⁻⁷		(insol.)	5x10 ⁻⁴	6x10 ⁻⁹
Cerium 144	(sol.)	3x10 ⁻⁴	10 ⁻⁸	Einsteinium 254	(sol.)	4x10 ⁻⁴	2x10 ⁻¹¹
	(insol.)	3x10 ⁻⁴	6x10 ⁻⁹		(insol.)	4x10 ⁻⁴	1x10 ⁻¹⁰
Cesium 131	(sol.)	0.07	10 ⁻⁵	Einsteinium 255	(sol.)	8x10 ⁻⁴	5x10 ⁻¹⁰
	(insol.)	0.03	3x10 ⁻⁶		(insol.)	8x10 ⁻⁴	4x10 ⁻¹⁰
Cesium 134m	(sol.)	0.2	4x10 ⁻⁵	Erbium 169	(sol.)	3x10 ⁻³	6x10 ⁻⁷
	(insol.)	0.03	6x10 ⁻⁶		(insol.)	3x10 ⁻³	4x10 ⁻⁷
Cesium 134	(sol.)	3x10 ⁻⁴	4x10 ⁻⁸	Erbium 171	(sol.)	3x10 ⁻³	7x10 ⁻⁷
	(insol.)	10 ⁻³	10 ⁻⁸		(insol.)	3x10 ⁻³	6x10 ⁻⁷
Cesium 135	(sol.)	3x10 ⁻³	5x10 ⁻⁷	Europium 152	(9.2 hr)		
	(insol.)	7x10 ⁻³	9x10 ⁻⁸		(sol.)	2x10 ⁻³	4x10 ⁻⁷
Cesium 136	(sol.)	2x10 ⁻³	4x10 ⁻⁷		(insol.)	2x10 ⁻³	3x10 ⁻⁷
	(insol.)	2x10 ⁻³	2x10 ⁻⁷	Europium 152	(13 yr.)		
Cesium 137	(sol.)	4x10 ⁻⁴	6x10 ⁻⁸		(sol.)	2x10 ⁻³	10 ⁻⁸
	(insol.)	10 ⁻³	10 ⁻⁸		(insol.)	2x10 ⁻³	2x10 ⁻⁸
Chlorine 36	(sol.)	2x10 ⁻³	4x10 ⁻⁷	Europium 154	(sol.)	6x10 ⁻⁴	4x10 ⁻⁹
	(insol.)	2x10 ⁻³	2x10 ⁻⁸		(insol.)	6x10 ⁻⁴	7x10 ⁻⁹
Chlorine 38	(sol.)	0.01	3x10 ⁻⁶	Europium 155	(sol.)	6x10 ⁻³	9x10 ⁻⁸
	(insol.)	0.01	2x10 ⁻⁶		(insol.)	6x10 ⁻³	7x10 ⁻⁸
Chromium 51	(sol.)	0.05	10 ⁻⁵	Fermium 254	(sol.)	4x10 ⁻³	6x10 ⁻⁸
	(insol.)	0.05	2x10 ⁻⁶		(insol.)	4x10 ⁻³	7x10 ⁻⁸
Cobalt 57	(sol.)	0.02	3x10 ⁻⁶	Fermium 255	(sol.)	1x10 ⁻³	2x10 ⁻⁸
	(insol.)	0.01	2x10 ⁻⁷		(insol.)	1x10 ⁻³	1x10 ⁻⁸
				Fermium 256	(sol.)	3x10 ⁻⁵	3x10 ⁻⁹
					(insol.)	3x10 ⁻⁵	2x10 ⁻⁹

Radionuclide	Water uc/ml	Occupational 40-hr. Week					
		A	B				
Column							
Fluorine 18	(sol.) 0.02		5x10 ⁻⁶	Iron 55	(sol.) 0.02		9x10 ⁻⁷
	(insol.) 0.01		3x10 ⁻⁶		(insol.) 0.07		10 ⁻⁶
Gadolinium 153	(sol.) 6x10 ⁻³		2x10 ⁻⁷	Iron 59	(sol.) 2x10 ⁻³		10 ⁻⁷
	(insol.) 6x10 ⁻³		9x10 ⁻⁸		(insol.) 2x10 ⁻³		5x10 ⁻⁸
Gadolinium 159	(sol.) 2x10 ⁻³		5x10 ⁻⁷	Krypton 85m	(imm.) ...		6x10 ⁻⁶
	(insol.) 2x10 ⁻³		4x10 ⁻⁷	Krypton 85	(imm.) ...		10 ⁻⁵
Gallium 72	(sol.) 10 ⁻³		2x10 ⁻⁷	Krypton 87	(imm.) ...		10 ⁻⁶
	(insol.) 10 ⁻³		2x10 ⁻⁷	Lanthanum 140	(sol.) 7x10 ⁻⁴		2x10 ⁻⁷
Germanium 71	(sol.) 0.05		10 ⁻⁵		(insol.) 7x10 ⁻⁴		10 ⁻⁷
	(insol.) 0.05		6x10 ⁻⁶	Lead 203	(sol.) 0.01		3x10 ⁻⁶
Gold 196	(sol.) 5x10 ⁻³		10 ⁻⁶		(insol.) 0.01		2x10 ⁻⁶
	(insol.) 4x10 ⁻³		6x10 ⁻⁷	Lead 210	(sol.) 4x10 ⁻⁶		10 ⁻¹⁰
Gold 198	(sol.) 2x10 ⁻³		3x10 ⁻⁷		(insol.) 5x10 ⁻³		2x10 ⁻¹⁰
	(insol.) 10 ⁻³		2x10 ⁻⁷	Lead 212	(sol.) 6x10 ⁻⁴		2x10 ⁻⁸
Gold 199	(sol.) 5x10 ⁻³		10 ⁻⁶		(insol.) 5x10 ⁻⁴		2x10 ⁻⁸
	(insol.) 4x10 ⁻³		8x10 ⁻⁷	Lutetium 177	(sol.) 3x10 ⁻³		6x10 ⁻⁷
Hafnium 181	(sol.) 2x10 ⁻³		4x10 ⁻⁸		(insol.) 3x10 ⁻³		5x10 ⁻⁷
	(insol.) 2x10 ⁻³		7x10 ⁻⁸	Manganese 52	(sol.) 10 ⁻³		2x10 ⁻⁷
Holmium 166	(sol.) 9x10 ⁻⁴		2x10 ⁻⁷		(insol.) 9x10 ⁻⁴		10 ⁻⁷
	(insol.) 9x10 ⁻⁴		2x10 ⁻⁷	Manganese 54	(sol.) 4x10 ⁻³		4x10 ⁻⁷
Hydrogen 3	(sol., insol.) 0.1		5x10 ⁻⁶		(insol.) 3x10 ⁻³		4x10 ⁻⁸
	(imm.) ...		2x10 ⁻³	Manganese 56	(sol.) 4x10 ⁻³		8x10 ⁻⁷
Indium 113m	(sol.) 0.04		8x10 ⁻⁶		(insol.) 3x10 ⁻³		5x10 ⁻⁷
	(insol.) 0.04		7x10 ⁻⁶	Mercury 197m	(sol.) 6x10 ⁻³		7x10 ⁻⁷
Indium 114m	(sol.) 5x10 ⁻⁴		10 ⁻⁷		(insol.) 5x10 ⁻³		8x10 ⁻⁷
	(insol.) 5x10 ⁻⁴		2x10 ⁻⁸	Mercury 197	(sol.) 9x10 ⁻³		10 ⁻⁶
Indium 115m	(sol.) 0.01		2x10 ⁻⁶		(insol.) 0.01		3x10 ⁻⁶
	(insol.) 0.01		2x10 ⁻⁶	Mercury 203	(sol.) 5x10 ⁻⁴		7x10 ⁻⁸
Indium 115	(sol.) 3x10 ⁻³		2x10 ⁻⁷		(insol.) 3x10 ⁻³		10 ⁻⁷
	(insol.) 3x10 ⁻³		3x10 ⁻⁸	Molybdenum 99	(sol.) 5x10 ⁻³		7x10 ⁻⁷
Iodine 125	(sol.) 4x10 ⁻³		5x10 ⁻⁹		(insol.) 10 ⁻³		2x10 ⁻⁷
	(insol.) 6x10 ⁻³		2x10 ⁻⁷	Neodymium 144	(sol.) 2x10 ⁻³		8x10 ⁻¹¹
Iodine 126	(sol.) 5x10 ⁻⁵		8x10 ⁻⁹		(insol.) 2x10 ⁻³		3x10 ⁻¹⁰
	(insol.) 3x10 ⁻⁷		3x10 ⁻⁷	Neodymium 147	(sol.) 2x10 ⁻³		4x10 ⁻⁷
Iodine 129	(sol.) 10 ⁻⁵		2x10 ⁻⁹		(insol.) 2x10 ⁻³		2x10 ⁻⁷
	(insol.) 6x10 ⁻³		7x10 ⁻⁸	Neodymium 149	(sol.) 8x10 ⁻³		2x10 ⁻⁶
Iodine 131	(sol.) 6x10 ⁻⁵		9x10 ⁻⁹		(insol.) 8x10 ⁻³		10 ⁻⁵
	(insol.) 2x10 ⁻³		3x10 ⁻⁷	Neptunium 237	(sol.) 9x10 ⁻⁵		4x10 ⁻¹²
Iodine 132	(sol.) 2x10 ⁻³		2x10 ⁻⁷		(insol.) 9x10 ⁻⁴		10 ⁻¹⁰
	(insol.) 5x10 ⁻³		9x10 ⁻⁷	Neptunium 239	(sol.) 4x10 ⁻³		8x10 ⁻⁷
Iodine 133	(sol.) 2x10 ⁻⁴		3x10 ⁻⁸		(insol.) 4x10 ⁻³		7x10 ⁻⁷
	(insol.) 10 ⁻³		2x10 ⁻⁷	Nickel 59	(sol.) 6x10 ⁻³		5x10 ⁻⁷
Iodine 134	(sol.) 4x10 ⁻³		5x10 ⁻⁷		(insol.) 0.06		8x10 ⁻⁷
	(insol.) 0.02		3x10 ⁻⁶	Nickel 63	(sol.) 8x10 ⁻⁴		6x10 ⁻⁸
Iodine 135	(sol.) 7x10 ⁻⁴		10 ⁻⁷		(insol.) 0.02		3x10 ⁻⁷
	(insol.) 2x10 ⁻³		4x10 ⁻⁷	Nickel 65	(sol.) 4x10 ⁻³		9x10 ⁻⁷
Iridium 190	(sol.) 6x10 ⁻³		10 ⁻⁶		(insol.) 3x10 ⁻³		5x10 ⁻⁷
	(insol.) 5x10 ⁻³		4x10 ⁻⁷	Niobium 93m	(sol.) 0.01		10 ⁻⁷
Iridium 192	(sol.) 10 ²		10 ⁻⁷		(insol.) 0.01		2x10 ⁻⁷
	(insol.) 10 ⁻³		3x10 ⁻⁸	Niobium 95	(sol.) 3x10 ⁻³		5x10 ⁻⁷
Iridium 194	(sol.) 10 ⁻³		2x10 ⁻⁷		(insol.) 3x10 ⁻³		10 ⁻⁷
	(insol.) 9x10 ⁻⁴		2x10 ⁻⁷	Niobium 97	(sol.) 0.03		6x10 ⁻⁶
					(insol.) 0.03		5x10 ⁻⁶
				Osmium 185	(sol.) 2x10 ⁻³		5x10 ⁻⁷
					(insol.) 2x10 ⁻³		5x10 ⁻⁸

Radionuclide	Occupational 40-hr. Week		Radionuclide		
	Water uc/ml A	Air uc/ml B			
Column			Protactinium 233	(sol.)	4x10 ⁻³
Osmium 191m	(sol.) 0.07	2x10 ⁻⁵		(insol.)	3x10 ⁻³
	(insol.) 0.07	9x10 ⁻⁶	Radium 223	(sol.)	2x10 ⁻⁵
Osmium 191	(sol.) 5x10 ⁻³	10 ⁻⁶		(insol.)	10 ⁻⁴
	(insol.) 5x10 ⁻³	4x10 ⁻⁷	Radium 224	(sol.)	7x10 ⁻⁵
Osmium 193	(sol.) 2x10 ⁻³	4x10 ⁻⁷		(insol.)	2x10 ⁻⁴
	(insol.) 2x10 ⁻³	3x10 ⁻⁷	Radium 226	(sol.)	4x10 ⁻⁷
Palladium 103	(sol.) 0.01	10 ⁻⁶		(insol.)	9x10 ⁻⁴
	(insol.) 8x10 ⁻³	7x10 ⁻⁷	Radium 228	(sol.)	8x10 ⁻⁷
Palladium 109	(sol.) 3x10 ⁻³	6x10 ⁻⁷		(insol.)	7x10 ⁻⁴
	(insol.) 2x10 ⁻³	4x10 ⁻⁷	Radon 220		...
Phosphorus 32	(sol.) 5x10 ⁻⁴	7x10 ⁻⁸	Radon 222		...
	(insol.) 7x10 ⁻⁴	8x10 ⁻⁸	Rhenium 183	(sol.)	0.02
Platinum 191	(sol.) 4x10 ⁻³	8x10 ⁻⁷		(insol.)	8x10 ⁻³
	(insol.) 3x10 ⁻³	6x10 ⁻⁷	Rhenium 186	(sol.)	3x10 ⁻³
Platinum 193m	(sol.) 0.03	7x10 ⁻⁶		(insol.)	10 ⁻³
	(insol.) 0.03	5x10 ⁻⁶	Rhenium 187	(sol.)	0.07
Platinum 193	(sol.) 0.03	10 ⁻⁶		(insol.)	0.04
	(insol.) 0.05	3x10 ⁻⁷	Rhenium 188	(sol.)	2x10 ⁻³
Platinum 197m	(sol.) 0.03	6x10 ⁻⁶		(insol.)	9x10 ⁻⁴
	(insol.) 0.03	5x10 ⁻⁶	Rhodium 103m	(sol.)	0.4
Platinum 197	(sol.) 4x10 ⁻³	8x10 ⁻⁷		(insol.)	0.3
	(insol.) 3x10 ⁻³	6x10 ⁻⁷	Rhodium 105	(sol.)	4x10 ⁻³
Plutonium 238	(sol.) 10 ⁻⁴	2x10 ⁻¹²		(insol.)	3x10 ⁻³
	(insol.) 8x10 ⁻⁴	3x10 ⁻¹¹	Rubidium 86	(sol.)	2x10 ⁻³
Plutonium 239	(sol.) 10 ⁻⁴	2x10 ⁻¹²		(insol.)	7x10 ⁻⁴
	(insol.) 8x10 ⁻⁴	4x10 ⁻¹¹	Rubidium 87	(sol.)	3x10 ⁻³
Plutonium 240	(sol.) 10 ⁻⁴	2x10 ⁻¹²		(insol.)	5x10 ⁻³
	(insol.) 8x10 ⁻⁴	4x10 ⁻¹¹	Ruthenium 97	(sol.)	0.01
Plutonium 241	(sol.) 7x10 ⁻³	9x10 ⁻¹¹		(insol.)	0.01
	(insol.) 0.04	4x10 ⁻⁸	Ruthenium 103	(sol.)	2x10 ⁻³
Plutonium 242	(sol.) 10 ⁻⁴	2x10 ⁻¹²		(insol.)	2x10 ⁻³
	(insol.) 9x10 ⁻⁴	4x10 ⁻¹¹	Ruthenium 105	(sol.)	3x10 ⁻³
Plutonium 243	(sol.) 1x10 ⁻²	2x10 ⁻⁶		(insol.)	3x10 ⁻³
	(insol.) 1x10 ⁻²	2x10 ⁻⁶	Ruthenium 106	(sol.)	4x10 ⁻⁴
Plutonium 244	(sol.) 1x10 ⁻⁴	2x10 ⁻¹²		(insol.)	3x10 ⁻⁴
	(insol.) 3x10 ⁻⁴	3x10 ⁻¹¹	Samarium 147	(sol.)	2x10 ⁻³
Polonium 210	(sol.) 2x10 ⁻⁵	5x10 ⁻¹⁰		(insol.)	2x10 ⁻³
	(insol.) 8x10 ⁻⁴	2x10 ⁻¹⁰	Samarium 151	(sol.)	0.01
Potassium 42	(sol.) 9x10 ⁻³	2x10 ⁻⁶		(insol.)	0.01
	(insol.) 6x10 ⁻⁴	10 ⁻⁷	Samarium 153	(sol.)	2x10 ⁻³
Praseodymium 142	(sol.) 9x10 ⁻⁴	2x10 ⁻⁷		(insol.)	2x10 ⁻³
	(insol.) 9x10 ⁻⁴	2x10 ⁻⁷	Scandium 46	(sol.)	10 ⁻³
Praseodymium 143	(sol.) 10 ⁻³	3x10 ⁻⁷		(insol.)	10 ⁻³
	(insol.) 10 ⁻³	2x10 ⁻⁷	Scandium 47	(sol.)	3x10 ⁻³
Promethium 147	(sol.) 6x10 ⁻³	6x10 ⁻⁸		(insol.)	3x10 ⁻³
	(insol.) 6x10 ⁻³	10 ⁻⁷	Scandium 48	(sol.)	8x10 ⁻⁴
Promethium 149	(sol.) 10 ⁻³	3x10 ⁻⁷		(insol.)	8x10 ⁻⁴
	(insol.) 10 ⁻³	2x10 ⁻⁷	Selenium 75	(sol.)	9x10 ⁻³
Protactinium 230	(sol.) 7x10 ⁻³	2x10 ⁻⁹		(insol.)	8x10 ⁻³
	(insol.) 7x10 ⁻³	8x10 ⁻¹⁰	Silicon 31	(sol.)	0.03
Protactinium 231	(sol.) 3x10 ⁻⁵	10 ⁻¹²		(insol.)	6x10 ⁻³
	(insol.) 8x10 ⁻⁴	10 ⁻¹⁰	Silver 105	(sol.)	3x10 ⁻³
				(insol.)	3x10 ⁻³
			Silver 110m	(sol.)	9x10 ⁻⁴
				(insol.)	9x10 ⁻⁴

Radionuclide	Occupational 40-hr. Week		Thallium 202	(sol.)	4x10 ⁻³	8x10 ⁻⁷
	Water uc/ml A	Air uc/ml B				
Column			Thallium 204	(insol.)	2x10 ⁻³	2x10 ⁻⁷
Silver 111	(sol.) 10 ⁻³	3x10 ⁻⁷	Thallium 204	(sol.)	3x10 ⁻³	6x10 ⁻⁷
	(insol.) 10 ⁻³	2x10 ⁻⁷		(insol.)	2x10 ⁻³	3x10 ⁻⁸
Sodium 22	(sol.) 10 ⁻³	2x10 ⁻⁷	Thorium 227	(sol.)	5x10 ⁻⁴	3x10 ⁻¹⁰
	(insol.) 9x10 ⁻⁴	9x10 ⁻⁹		(insol.)	5x10 ⁻⁴	2x10 ⁻¹⁰
Sodium 24	(sol.) 6x10 ⁻³	10 ⁻⁶	Thorium 228	(sol.)	2x10 ⁻⁴	9x10 ⁻¹²
	(insol.) 8x10 ⁻⁴	10 ⁻⁷		(insol.)	4x10 ⁻⁴	6x10 ⁻¹²
Strontium 85m	(sol.) 0.2	4x10 ⁻⁵	Thorium 230	(sol.)	5x10 ⁻⁵	2x10 ⁻¹²
	(insol.) 0.2	3x10 ⁻⁵		(insol.)	9x10 ⁻⁴	10 ⁻¹¹
Strontium 85	(sol.) 3x10 ⁻³	2x10 ⁻⁷	Thorium 231	(sol.)	7x10 ⁻³	10 ⁻⁶
	(insol.) 5x10 ⁻³	10 ⁻⁷		(insol.)	7x10 ⁻³	10 ⁻⁶
Strontium 89	(sol.) 3x10 ⁻⁴	3x10 ⁻⁸	Thorium 232	(sol.)	5x10 ⁻⁵	3x10 ⁻¹¹
	(insol.) 8x10 ⁻⁴	4x10 ⁻⁸		(insol.)	10 ⁻³	3x10 ⁻¹¹
Strontium 90	(sol.) 1x10 ⁻⁵	1x10 ⁻⁹	Thorium 234	(sol.)	5x10 ⁻⁴	6x10 ⁻⁸
	(insol.) 10 ⁻³	5x10 ⁻⁹		(insol.)	5x10 ⁻⁴	3x10 ⁻⁸
Strontium 91	(sol.) 2x10 ⁻³	4x10 ⁻⁷	Thorium Nat.	(sol.)	3x10 ⁻⁵	3x10 ⁻¹¹
	(insol.) 10 ⁻³	3x10 ⁻⁷		(insol.)	3x10 ⁻⁴	3x10 ⁻¹¹
Strontium 92	(sol.) 2x10 ⁻³	4x10 ⁻⁷	Thulium 170	(sol.)	10 ⁻³	4x10 ⁻⁸
	(insol.) 2x10 ⁻³	3x10 ⁻⁷		(insol.)	10 ⁻³	3x10 ⁻⁸
Sulfur 35	(sol.) 2x10 ⁻³	3x10 ⁻⁷	Thulium 171	(sol.)	0.01	10 ⁻⁷
	(insol.) 8x10 ⁻³	3x10 ⁻⁷		(insol.)	0.01	2x10 ⁻⁷
Tantalum 182	(sol.) 10 ⁻³	4x10 ⁻⁸	Tin 113	(sol.)	2x10 ⁻³	4x10 ⁻⁷
	(insol.) 10 ⁻³	2x10 ⁻⁸		(insol.)	2x10 ⁻³	5x10 ⁻⁸
Technetium 96m	(sol.) 0.4	8x10 ⁻⁵	Tin 125	(sol.)	5x10 ⁻⁴	10 ⁻⁷
	(insol.) 0.3	3x10 ⁻⁵		(insol.)	5x10 ⁻⁴	8x10 ⁻⁸
Technetium 96	(sol.) 3x10 ⁻³	6x10 ⁻⁷	Tungsten 181	(sol.)	0.01	2x10 ⁻⁶
	(insol.) 10 ⁻³	2x10 ⁻⁷		(insol.)	0.01	10 ⁻⁷
Technetium 97m	(sol.) 0.01	2x10 ⁻⁶	Tungsten 185	(sol.)	4x10 ⁻³	8x10 ⁻⁷
	(insol.) 5x10 ⁻³	2x10 ⁻⁷		(insol.)	3x10 ⁻³	10 ⁻⁷
Technetium 97	(sol.) 0.05	10 ⁻⁵	Tungsten 187	(sol.)	2x10 ⁻³	4x10 ⁻⁷
	(insol.) 0.02	3x10 ⁻⁷		(insol.)	2x10 ⁻³	3x10 ⁻⁷
Technetium 99m	(sol.) 0.2	4x10 ⁻⁵	Uranium 230	(sol.)	7x10 ⁻⁵	3x10 ⁻¹⁰
	(insol.) 0.08	10 ⁻⁵		(insol.)	10 ⁻⁴	10 ⁻¹⁰
Technetium 99	(sol.) 0.01	2x10 ⁻⁶	Uranium 232	(sol.)	2x10 ⁻⁵	10 ⁻¹⁰
	(insol.) 5x10 ⁻³	6x10 ⁻⁸		(insol.)	8x10 ⁻⁴	3x10 ⁻¹¹
Tellurium 125m	(sol.) 5x10 ⁻³	4x10 ⁻⁷	Uranium 233	(sol.)	10 ⁻⁴	5x10 ⁻¹⁰
	(insol.) 3x10 ⁻³	10 ⁻⁷		(insol.)	9x10 ⁻¹⁰	10 ⁻¹⁰
Tellurium 127m	(sol.) 2x10 ⁻³	10 ⁻⁷	Uranium 234	(sol.)	10 ⁻⁴	6x10 ⁻¹⁰
	(insol.) 2x10 ⁻³	4x10 ⁻⁸		(insol.)	9x10 ⁻⁴	10 ⁻¹⁰
Tellurium 127	(sol.) 8x10 ⁻³	2x10 ⁻⁶	Uranium 235	(sol.)	10 ⁻⁴	5x10 ⁻¹⁰
	(insol.) 5x10 ⁻³	9x10 ⁻⁷		(insol.)	8x10 ⁻⁴	10 ⁻¹⁰
Tellurium 129m	(sol.) 10 ⁻³	8x10 ⁻⁸	Uranium 236	(sol.)	10 ⁻⁴	6x10 ⁻¹⁰
	(insol.) 6x10 ⁻⁴	3x10 ⁻⁸		(insol.)	10 ⁻³	10 ⁻¹⁰
Tellurium 129	(sol.) 0.02	5x10 ⁻⁶	Uranium 238	(sol.)	2x10 ⁻⁵	7x10 ⁻¹¹
	(insol.) 0.02	4x10 ⁻⁶		(insol.)	10 ⁻³	10 ⁻¹⁰
Tellurium 131m	(sol.) 2x10 ⁻³	4x10 ⁻⁷	Uranium 240 & Neptunium 240	(sol.)	1x10 ⁻³	2x10 ⁻⁷
	(insol.) 10 ⁻³	2x10 ⁻⁷		(insol.)	1x10 ⁻³	2x10 ⁻⁷
Tellurium 132	(sol.) 9x10 ⁻⁴	2x10 ⁻⁷	Uranium-Nat.	(sol.)	2x10 ⁻⁵	7x10 ⁻¹¹
	(insol.) 6x10 ⁻⁴	10 ⁻⁷		(insol.)	5x10 ⁻⁴	6x10 ⁻¹¹
Terbium 160	(sol.) 10 ⁻³	10 ⁻⁷	Vanadium 48	(sol.)	9x10 ⁻⁴	2x10 ⁻⁷
	(insol.) 10 ⁻³	3x10 ⁻⁸		(insol.)	8x10 ⁻⁴	6x10 ⁻⁸
Thallium 200	(sol.) 0.01	3x10 ⁻⁶	Xenon 131m	(imm.)	...	2x10 ⁻⁵
	(insol.) 7x10 ⁻³	10 ⁻⁶	Xenon 133	(imm.)	...	10 ⁻⁵
Thallium 201	(sol.) 9x10 ⁻³	2x10 ⁻⁶	Xenon 133m	(imm.)	...	1x10 ⁻⁵
	(insol.) 5x10 ⁻³	9x10 ⁻⁷	Xenon 135	(imm.)	...	4x10 ⁻⁶

Radionuclide	Occupational 40-hr. Week	
	Water	Air
	uc/ml	uc/ml
Column A		Column B
Ytterbium 175 (sol.)	3x10 ⁻³	7x10 ⁻⁷
(insol.)	3x10 ⁻³	6x10 ⁻⁷
Yttrium 90 (sol.)	6x10 ⁻⁴	10 ⁻⁷
(insol.)	6x10 ⁻⁴	10 ⁻⁷
Yttrium 91m (sol.)	0.1	2x10 ⁻⁵
(insol.)	0.1	2x10 ⁻⁵
Yttrium 91 (sol.)	8x10 ⁻⁴	4x10 ⁻⁸
(insol.)	8x10 ⁻⁴	3x10 ⁻⁸
Yttrium 92 (sol.)	2x10 ⁻³	4x10 ⁻⁷
(insol.)	2x10 ⁻³	3x10 ⁻⁷
Yttrium 93 (sol.)	8x10 ⁻⁴	2x10 ⁻⁷
(insol.)	8x10 ⁻⁴	10 ⁻⁷
Zinc 65 (sol.)	3x10 ⁻³	10 ⁻⁷
(insol.)	5x10 ⁻³	6x10 ⁻⁸
Zinc 69m (sol.)	2x10 ⁻³	4x10 ⁻⁷
(insol.)	2x10 ⁻³	3x10 ⁻⁷
Zinc 69 (sol.)	0.05	7x10 ⁻⁶
(insol.)	0.05	9x10 ⁻⁶
Zirconium 93 (sol.)	0.02	10 ⁻⁷
(insol.)	0.02	3x10 ⁻⁷
Zirconium 95 (sol.)	2x10 ⁻³	10 ⁻⁷
(insol.)	2x10 ⁻³	3x10 ⁻⁸
Zirconium 97 (sol.)	5x10 ⁻⁴	10 ⁻⁷
(insol.)	5x10 ⁻⁴	9x10 ⁻⁸
Unidentified Radionuclides	3x10 ⁻⁷	1x10 ⁻¹²

Abbreviations— sol. = soluble
 insol. = insoluble
 imm. = immersion
 m = metastable

(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:

$$\frac{C_a}{MPC_a} + \frac{C_b}{MPC_b} + \frac{C_c}{MPC_c} < 1$$

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 × 10⁻⁷

ii. For purposes of Column B — 1 × 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.

c. Element (atomic number) and isotope	Table I		Table II	
	Col. 1 Air (uc/ml)	Col. 2 Water (uc/ml)	Col. 1 Air (uc/ml)	Col. 2 Water (uc/ml)
If it is known that Sr 90, I 129, Pb 210, Po 210, At 211, Ra 223, Ra 224, Ra 226, Ac 227, Ra 228, Th 230, Pa 231, Th 232, and Th-nat are not present .....	.....	9x10 ⁻⁵	.....	3x10 ⁻⁶
If it is known that Sr 90, I 129, Pb 210, Po 210, Ra 223, Ra 226, Ra 228, Pa 231, and Th-nat are not present .....	.....	6x10 ⁻⁵	.....	2x10 ⁻⁶
If it is known that Sr 90, Pb 210, Ra 226 and Ra 228 are not present .....	.....	2x10 ⁻⁵	.....	6x10 ⁻⁷
If it is known that Ra 226 and Ra 228 are not present .....	.....	3x10 ⁻⁶	.....	1x10 ⁻⁷
If it is known that alpha-emitters and Sr 90, I 129, Pb 210, Ac 227, Ra 228, Pa 230, Pu 241 and Bk 249 are not present	3x10 ⁻¹¹	.....	1x10 ⁻¹⁰	.....
If it is known that alpha-emitters and Pb 210, Ac 227, Ra 228 and Pu 241 are not present	3x10 ⁻¹⁰	.....	1x10 ⁻¹¹	.....
If it is known that alpha-emitters and Ac 227 are not present	3x10 ⁻¹¹	.....	1x10 ⁻¹²	.....
If it is known that Ac 227, Th 230, Pa 231, Pu 238, Pu 239, Pu 240, Pu 242, and Cf 249 are not present	3x10 ⁻¹²	.....	1x10 ⁻¹³	.....
If Pa 231, Pu 239, Pu 240, Pu 242 and Cf 249 are not present	2x10 ⁻¹²	.....	7x10 ⁻¹⁴	.....

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.

Amended by R.2005 d.156, effective May 16, 2005.
See: 36 N.J.R. 2336(a), 37 N.J.R. 1826(a).
Rewrote the section.

7:28-6.6 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.

(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.

New Rule, R.2005 d.156, effective May 16, 2005.
See: 36 N.J.R. 2336(a), 37 N.J.R. 1826(a).

SUBCHAPTER 7. RADIATION SURVEYS AND PERSONNEL MONITORING

7:28-7.1 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.