12/21/06

Kansas Department of Health and Environment
Proposed Amended Regulation

Article 35. Radiation

Part 1. General

28-35-135n. Definitions. As used in these regulations, each of the following terms shall have the meaning assigned in this regulation: (a) "NARM" means any naturally occurring or accelerator-produced radioactive material, not including byproduct, source, or special nuclear material.

(b) "Nationally tracked source" means a sealed source containing any quantity of radioactive material equal to or greater than any threshold listed in the table in this subsection. For purposes of the definition of "nationally tracked source," "sealed source" shall be defined as radioactive material that is sealed in a capsule or closely bonded, that is in a solid form, and that is not exempt from regulatory control. For purposes of the definition of "nationally tracked source," "sealed source" shall not include any radioactive material encapsulated solely for disposal and any nuclear material contained in any fuel assembly, subassembly, fuel rod, or fuel pellet. Category 1 nationally tracked sources contain radioactive material in quantities equal to or greater than the category 1 threshold. Category 2 nationally tracked sources contain radioactive material in quantities equal to or greater than the category 2 threshold but less than the category 1 threshold.

Nationally tracked source thresholds				
Radioactive material	Category 1 (TBq)*	Category 1 (Ci)**	Category 2 (TBq)*	Category 2 (Ci)**
Actinium-227	20	540	0.2	5.4
Americium-241	60	1,600	0.6	16
Americium-241/Be	60	1,600	0.6	16
Californium-252	20	540	0.2	5 .4
Cobalt-60	30	810	0.3	8 .1
Curium-244	50	1,400	0.5	14
Cesium-137	100	2,700	1	27
Gadolinium-153	1,000	27,000	10	270
Iridium-192	80	2,200	0.8	22
Plutonium-238	60	1,600	0.6	16
Plutonium-239/Be	60	1,600	0.6	16
Polonium-210	60	1,600	0.6	16
Promethium-147	40,000	1,100,000	400	11,000
Radium-226	40	1,100	0.4	11
Selenium-75	200	5,400	2	54
Strontium-90	1,000	27,000	10	270
Thorium-228	20	540	0.2	5.4
Thorium-229	20	540	0.2	5.4

Thulium-170	20,000	540,000	200	5,400
Ytterbium-169	300	8,100	3	81

*The Terabecquerel (TBq) values are the regulatory standard.

**The curie (Ci) values specified are obtained by converting from the TBq value. The curie values are provided for practical usefulness only and are rounded after conversion.

(c) “Natural radioactivity” means the radioactivity of naturally occurring nuclides.

~~(c)~~ (d) “New equipment” means any system subject to K.A.R 28-35-249 that was manufactured after January 1, 1985.

~~(d)~~ (e) “Nonionizing radiation” means radiation not capable of producing ionization, including sound and radio waves and visible, infrared, or ultraviolet light.

~~(e)~~ (f) “Non-stochastic effect” means a health effect, the severity of which varies with the dose and for which a threshold is believed to exist. For purposes of these regulations, “deterministic effect” shall be considered an equivalent term.

~~(f)~~ (g) “Normal operating procedures” means operating procedures for conditions suitable for routine purposes with shielding and barriers in place, including routine alignment procedures. This term shall not include maintenance procedures and routine and emergency radiation safety considerations.

~~(g)~~ (h) “Normal treatment distance” means either of the following:

(1) For electron irradiation, the distance from the virtual source to the surface along the central axis of the useful beam, as specified by the manufacturer; or

(2) for X-ray irradiation, the distance from the virtual source to the isocenter along the

central axis of the useful beam. For non-isocentric equipment, this distance shall be the distance specified by the manufacturer.

~~(h)~~ (i) "Nuclear regulatory commission (NRC)" means the U.S. nuclear regulatory commission or its duly authorized representatives.

~~(i)~~ (j) "NVLAP" means the national voluntary laboratory accreditation program.

(Authorized by K.S.A. 48-1607; implementing K.S.A. 48-1603 and 48-1607; effective Dec. 30, 2005; amended P-_____.)