Kansas Administrative Regulations

Department of Health and Environment

Article 35.—Radiation—Part 4. Standards for Protection Against Radiation.

28-35-212a. Occupational dose limits for adults.

(a) Each licensee or registrant shall control the occupational dose to individual adults, except for planned special exposures to the following dose limits:

(1) The annual limit shall be the more limiting of either of the following:

(A) The total effective dose equivalent being equal to 0.05 Sv (5 rem); or

(B) 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 0.50 Sv (50 rem).

(2) The annual limits to the lens of the eye, to the skin, and to the extremities shall be the following:

(A) An eye dose equivalent of 0.15 Sv (15 rem); and

(B) a shallow dose equivalent of 0.50 Sv (50 rem) to the skin or to any extremity.

(b) Doses received in excess of the annual limits, including doses received during accidents, emergencies, and planned special exposures, shall be subtracted from the limits for planned special exposures that the individual could receive during the current year and during the individual's lifetime.

(c) When the external exposure is determined by measurement with an external personal monitoring device, the deep dose equivalent shall be used in place of the effective dose equivalent, unless the effective dose equivalent is determined by a dosimetry method approved by the secretary. The assigned deep dose equivalent shall be for the portion of the body receiving the highest exposure. The assigned shallow dose equivalent shall be the dose averaged over the contiguous 10 square centimeters of skin receiving the highest exposure.

(1) The deep dose equivalent, eye 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.

(2) If a protective apron is worn by medical fluoroscopists performing special and interventional fluoroscopic procedures and monitoring is conducted as specified in K.A.R. 28-35-217a, the use of weighting factors in determining the effective dose equivalent for external radiation may be approved by the secretary upon receipt of a written request. In no case shall the use of weighting factors be approved unless the request is accompanied by a list of the procedures to be used to ensure that exposures are maintained ALARA and the effective dose equivalent is determined as follows:

(A) If only one individual monitoring device is used and the device is located at the neck outside the protective apron, the reported deep dose equivalent shall be the effective dose equivalent for external radiation.

(B) If only one individual monitoring device is used, the device is located at the neck outside the protective apron, and the reported dose exceeds 25 percent of the limit specified in this regulation, then the reported deep dose equivalent value multiplied by 0.3 shall be the effective dose equivalent for external radiation.

(C) If individual monitoring devices are worn, both under the protective apron at the waist and outside the protective apron at the neck, the effective dose equivalent for external radiation shall be assigned the value of the sum of the deep dose equivalent reported for the individual monitoring device located at the waist under the protective apron multiplied by 1.5 and the deep dose equivalent reported for the individual monitoring device located at the neck outside the protective apron multiplied by 0.04.

(3) All individuals who are associated with the operation of an X-ray system shall be subject to the occupational exposure limits and the requirements for the determination of the doses that are specified in this regulation. In addition, each individual shall meet the following requirements:

(A) When protective clothing or devices are worn on portions of the body and one or more monitoring devices are required, at least one monitoring device shall be utilized as follows:

(i) When an apron is worn, the monitoring device shall be worn at the collar outside of the apron;

(ii) the dose to the device, if one is used, shall be recorded as the whole-body dose based on the maximum dose attributed to any one critical organ, including the gonads, the blood-forming organs, the head and trunk, and the lens of the eye. If more than one device is used and a record is made of the data, each dose shall be identified with the area where the device was worn on the body;

(4) Exposure of a personnel-monitoring device to deceptively indicate a dose delivered to an individual shall be prohibited.

(5) If the individual is exposed during procedures not specifically approved, weighting factors shall not be applied.

(d) Derived air concentration (DAC) and annual limit on intake (ALI) values, in appendix B, table I, published in "appendices to part 4: standards for protection against radiation," which is adopted in K.A.R. 28-35-135a, shall be used to determine the individual's dose and to demonstrate compliance with the occupational dose limits.

(e) Notwithstanding 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, in accordance with footnote 3 of appendix B published in "appendices to part 4: standards for protection against radiation," which is adopted in K.A.R. 28-35-135a.

(f) Each 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.

(Authorized by and implementing K.S.A. 48-1607; effective, T-85-43, Dec. 19, 1984; effective May 1, 1985; amended Sept. 20, 1993; amended Oct. 17, 1994; amended Dec. 30, 2005; amended March 18, 2011.)

***** Authenticated Kansas Administrative Regulation *****