Kansas Administrative Regulations

Department of Health and Environment

Article 35.—Radiation

28-35-297. Analytical X-ray equipment requirements.

(a) Safety device. A device that prevents the entry of any portion of an individual's body into the primary X-ray beam path or causes the beam to be shut off upon entry into its path shall be provided on all open-beam configurations. Any licensee or registrant, or both, may apply to the department for an exemption from the requirement of a safety device. Each application shall include the following:

(1) A description of the various safety devices that have been evaluated;

(2) the reason each of these devices cannot be used; and

(3) a description of the alternative methods that will be employed to minimize the possibility of an accidental exposure, including procedures to ensure that operators and others in the area will be informed of the absence of safety devices.

(b) Ports. Unused ports on radiation source housings shall be secured in the closed position in a manner that will prevent casual opening.

(c) Labeling. All analytical X-ray equipment shall be labeled with a readily discernible sign or signs bearing the radiation symbol and one of the following:

(1) “CAUTION—HIGH INTENSITY X-RAY BEAM,” or words having a similar meaning, on the X-ray source housing;

(2) “CAUTION RADIATION—THIS EQUIPMENT PRODUCES RADIATION WHEN ENERGIZED,” or words having a similar meaning, near any switch that energizes an X-ray tube if the radiation source is an X-ray tube;

(3) “CAUTION—RADIOACTIVE MATERIAL,” or words having a similar meaning, on the source housing if the radiation source is a radionuclide; or

(4) “CAUTION X-RAY HAZARD: DO NOT INSERT ANY PART OF THE BODY WHEN SYSTEM IS ENERGIZED,” or words having a similar meaning, at or near each opening designed solely for object entry.

(d) Warning lights. An easily visible warning light labeled with the words “X-RAY ON,” or words having a similar meaning, shall be located at either of the following:

(1) Near any switch that energizes an X-ray tube. The warning light shall be illuminated only when the tube is energized; or

(2) in the case of a radioactive source, near any switch that opens a housing shutter. The warning light shall be illuminated only when the shutter is open.

On X-ray equipment installed after January 1, 1976, each warning light shall have a fail-safe characteristic.

(e) Control panel. The radiation-generating device shall not be activated, except from a control panel with all indicators identifiable through the use of labels, symbols, software displays, or the equivalent.

(f) Interlocks. After triggering any interlock, it shall not be possible to reset the radiation-generating device to full operation, except from a control panel. Each interlock shall have a fail-safe characteristic.

(g) Radiation source housing. Each X-ray tube housing shall be constructed so that with all shutters closed, the leakage radiation measured at a distance of five centimeters from its surface is not capable of producing a dose in excess of 2.5 millirem in one hour at any specified tube rating.

(h) Generator cabinet. Each X-ray generator shall be supplied with a protective cabinet that limits leakage radiation measured at a distance of five centimeters from its surface so that the X-ray generator is not capable of producing a dose in excess of 0.25 millirem in one hour.

(Authorized by and implementing K.S.A. 48-1607; effective May 1, 1976; amended Oct. 23, 2026.)

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