

902 KAR 100:105. X-rays; general.

RELATES TO: KRS 211.842-211.852, 211.990(4)

STATUTORY AUTHORITY: KRS 194.050, 211.090, 211.844

NECESSITY, FUNCTION, AND CONFORMITY: The Cabinet for Human Resources is authorized by KRS 211.844 to provide by administrative regulation for the registration and licensing of the possession or use of a source of ionizing or electronic product radiation and the handling and disposal of radioactive waste. The purpose of this administrative regulation is to provide general requirements for the possession, use, and operation of x-ray systems.

Section 1. Applicability. This administrative regulation shall apply to x-ray systems and persons, equipment, and materials used in connection with the possession, use, or operation of these systems. X-ray systems shall comply with the requirements of this administrative regulation and with other administrative regulations pertinent to the particular system employed.

Section 2. Administrative Control. (1) No person shall make, sell, lease, transfer, lend, or install x-ray systems or the accessories used in connection with the systems unless the accessories and systems, if properly placed in operation and properly used, meet the requirements of these administrative regulations. These provisions include, but are not limited to, the delivery of cones or collimators, filters, adequate timers, and fluoroscopic shutters, if applicable.

(2) The registrant shall be responsible for directing the operation of the x-ray systems he has registered with the cabinet. In the operation of the x-ray system, the registrant or his agent shall ensure that the following requirements are met:

(a) An x-ray system which does not meet the provisions of these administrative regulations shall not be operated unless a specific exemption in writing has been granted by the cabinet. If the registrant advises an agent of the cabinet that he no longer uses an x-ray system, the cabinet may inactivate the system. Inactivated x-ray systems may be reactivated only by the cabinet or with its written permission. Inactivation of an x-ray system may be accomplished by one (1) of the following means:

1. An inactivation seal(s), numbers and instructions approved by the cabinet, may be placed on an x-ray system so as to prevent energizing the system. X-ray systems so sealed as inactive shall not be utilized and the seal or attached instructions shall not be removed without the express authorization of the cabinet.

2. The cabinet may approve the removal of portions of the x-ray system so as to render the system inoperative or so as to allow only those portions of the system to remain operative which are in compliance with these administrative regulations. X-ray systems or portions of x-ray systems having been so inactivated shall not be operated or be made operative by reinstallation of the removed portions of the system without the express authorization of the cabinet. X-ray systems so inactivated shall be clearly labeled showing the limitations of the x-ray system. The labels shall not be removed without the express authorization of the cabinet.

(b) Individuals operating x-ray systems shall be adequately instructed in safe operating procedures and shall be competent in the safe use of the system.

(c) Written safety procedures and rules for the particular x-ray system shall be posted in a conspicuous place beside each x-ray system's control panel and a copy of these administrative regulations shall be made available in each general work area.

(d) The following exposures are prohibited:

1. Exposure of an individual to the useful beam for training or demonstration purposes; and
2. Exposure of individuals for the purpose of mass screenings, except if authorized by a licensed practitioner of the healing arts within the scope of his professional license.

(e) If a patient or film is provided with auxiliary support during a radiation exposure, the registrant shall:

1. Provide mechanical holding devices to be used if the technique permits;
2. Provide written safety procedures, as required by this administrative regulation, which shall indicate the requirements for selecting a person to hold a patient or film and the procedure which the holder shall follow;
3. Provide the human holder with protection from radiation exposure as required by these administrative regulations; and
4. Ensure that no person is used routinely to hold film or patients.

(f) If protective clothing is worn on portions of the body and a monitoring device(s) are required, at least one (1) monitoring device shall be utilized as follows:

1. If an apron is worn, the monitoring device shall be worn at the neck area outside of the apron; and
2. If more than one (1) 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.

(g) A personnel monitoring device shall not be exposed to deceptively indicate a dose delivered to an individual.

(h) The registrant shall maintain the following information for each x-ray system for inspection by the cabinet:

1. Maximum rating of technique factors;
2. Tube rating charts and cooling curves; and
3. Records of surveys, calibrations, maintenance and modifications performed on the x-ray system along with the names of persons who performed the service; and
4. For equipment registered after the effective date of these administrative regulations, aluminum equivalent filtration of the useful beam, including routine variations.

(i) Each installation shall be provided with primary barriers and secondary barriers as are necessary to ensure compliance with these administrative regulations. This requirement shall be deemed to be met, if the thickness of barriers are equivalent to those as computed in accordance with the National Council of Radiation Protection Report No. 49, "Structural Shielding Design and Evaluation for Medical Use of X-rays and Gamma Rays of Energies up to 10 MeV"; and

1. Doors that are an integral part of primary and secondary barriers shall be closed during x-ray procedures; and
2. Doors in Section subparagraph 1 of this paragraph "CLOSE DOOR DURING X-RAY PROCEDURES".

(j) If a darkroom is used in connection with an x-ray system the following requirements shall apply:

1. The darkroom shall be constructed so that film being processed, handled, or stored is exposed only to light which has passed through a safe light filter; and
2. Adequate safety lighting shall be provided in each darkroom so that the radiance and spectral emissions of the safelight, bulb and filter combination shall not fog (the film) above the base fog level if exposed for one (1) minute at a distance of 120 centimeters from the lamp(s). Film manufacturer's recommendations for a safelight and its placement shall be adjudged to meet this criterion.

(k) Automatic processors and other closed processing systems shall meet the following requirements:

1. Preventive maintenance shall be performed on the unit, except for extended periods of non-use, on a frequency basis which is not less than that schedule recommended by the manufacturer. If no schedule is available from the manufacturer, a maintenance schedule shall be established which preserves good film quality; and

2. After a full cleansing of the processor, a film shall be exposed to a density of approximately one (1), with one-half (1/2) of the film protected from the exposure. The film shall be developed, kept near the unit and at least one (1) test film daily (exposed under techniques identical with those used for the original test film) shall be compared with the original test film to evaluate the adequacy of the unit's developing capability and base fog level.

(l) Manual processing systems shall meet the following requirements:

1. A device shall be available which indicates the actual temperature of the developer in degrees Fahrenheit or Celsius;

2. The amount of time that the film remains in the developer solution shall be controlled. At the end of a preset time interval, the timing mechanism used for controlling the development time shall provide a visible or audible signal;

3. A time-temperature technique consistent with the film or developer manufacturer's requirements shall be used; and

4. A temperature control system shall be available to maintain the temperature of the developing solution within the range specified by the manufacturer. A means shall be provided to control the temperature of the fixer and the rinse water to within five (5) degrees Fahrenheit of the temperature of the developer solution. Exceptions to the requirements of this subparagraph may be authorized by the cabinet on the basis of a written request providing details of the developing procedure to be used, methods of controlling developing conditions, and an adequate justification for the exception. (1 Ky.R. 410; eff. 2-5-1975; 3 Ky.R. 550; eff. 3-2-1977; 12 Ky.R. 1389; eff. 3-4-1986; 18 Ky.R. 1542; eff. 1-10-1992.)