

**4731.4170 PERSONNEL MONITORING.****Subpart 1. Monitoring requirements.**

A. A licensee may not permit an individual to act as a radiographer or a radiographer's assistant unless, at all times during radiographic operations, each individual wears, on the trunk of the body, a combination of direct reading dosimeter, an operating alarm ratemeter, and a personnel dosimeter.

B. At permanent radiography installations where other appropriate alarm or warning devices are in routine use, wearing an alarm ratemeter is not required.

C. Pocket dosimeters must have a range from zero to 200 millirems (2 mSv) and must be recharged at the start of each shift. Electronic personal dosimeters may only be used in place of ion-chamber pocket dosimeters.

D. Each personnel dosimeter must be assigned to and worn by only one individual.

E. Film badges must be replaced at periods not to exceed one month and other personnel dosimeters that require replacement must be replaced at periods not to exceed three months. All personnel dosimeters must be evaluated at periods not to exceed three months or promptly after replacement, whichever is more frequent.

Subp. 2. **Direct reading dosimeters.** Direct reading dosimeters, such as pocket dosimeters or electronic personal dosimeters, must be read and the exposures recorded at the beginning and end of each shift and records must be maintained according to part 4731.4310.

Subp. 3. **Pocket dosimeters.** Pocket dosimeters, or electronic personal dosimeters, must be checked at periods not to exceed 12 months for correct response to radiation and records must be maintained according to part 4731.4310. Acceptable dosimeters must read within plus or minus 20 percent of the true radiation exposure.

Subp. 4. **High readings.** If an individual's pocket chamber is found to be off-scale, or if the individual's electronic personal dosimeter reads greater than 200 millirems (2 mSv), and the possibility of radiation exposure cannot be ruled out as the cause, the individual's personnel dosimeter that requires processing must be sent for processing and evaluation within 24 hours. For personnel dosimeters that do not require processing, evaluation of the dosimeter must be started within 24 hours. The individual may not resume work associated with licensed material use until a determination of the individual's radiation exposure has been made. The determination must be made by the radiation safety officer or the radiation safety officer's designee. The results of the determination must be included in the records maintained according to part 4731.4310.

Subp. 5. **Lost or damaged dosimeters.** If the personnel dosimeter that is required under subpart 1 is lost or damaged, the worker must cease work immediately until a replacement personnel dosimeter meeting the requirements of subpart 1 is provided and the exposure is calculated for the time period from issuance to loss or damage of the personnel dosimeter. The results of the calculated exposure and the time period for which the personnel dosimeter was lost or damaged must be included in the records maintained according to part 4731.4310.

Subp. 6. **Report retention.** Dosimetry results must be retained according to part 4731.4310.

Subp. 7. **Ratemeter requirements.** An alarm ratemeter must:

A. be checked to ensure that the alarm functions properly (sounds) before use at the start of each shift;

B. be set to give an alarm signal at a preset dose rate of 500 millirems per hour (5 mSv/hr), with an accuracy of plus or minus 20 percent of the true radiation dose rate;

C. require special means to change the preset alarm function; and

D. be calibrated at periods not to exceed 12 months for correct response to radiation. A licensee must maintain records of alarm ratemeter calibrations according to part 4731.4310.

**Statutory Authority:** *MS s 144.1202; 144.1203*

**History:** *29 SR 755; 46 SR 791*

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