

4731.2030 SUMMATION OF EXTERNAL AND INTERNAL DOSES.

Subpart 1. **Summation required.** If a licensee is required to monitor under part 4731.2210, subparts 2 and 3, the licensee must demonstrate compliance with the dose limits by summing external and internal doses.

Subp. 2. **Summation not required.** If a licensee is required to monitor only under part 4731.2210, subpart 2, or only under part 4731.2210, subpart 3, then summation is not required to demonstrate compliance with the dose limits. The licensee may demonstrate compliance with the requirements for summation of external and internal doses by meeting one of the conditions specified under subpart 3 and the conditions specified under subparts 4 and 5. The dose equivalents for the lens of the eye, the skin, and the extremities are not included in the summation, but are subject to separate limits.

Subp. 3. **Intake by inhalation.** If the only intake of radionuclides is by inhalation, the total effective dose equivalent (TEDE) limit is not exceeded if the sum of the deep dose equivalent divided by the total effective dose equivalent limit, and one of the following, does not exceed unity:

- A. the sum of the fractions of the inhalation ALI for each radionuclide;
- B. the total number of derived air concentration-hours (DAC-hours) for all radionuclides divided by 2,000; or
- C. the sum of the calculated committed effective dose equivalents to all significantly irradiated organs or tissues (T) calculated from bioassay data using appropriate biological models and expressed as a fraction of the annual limit. For purposes of this item, an organ or tissue is considered significantly irradiated if, for that organ or tissue, the product of the weighting factors, W_T , and the committed dose equivalent, $H_{T,50}$, per unit intake is greater than ten percent of the maximum weighted value of $H_{T,50}$ per unit intake for any organ or tissue.

Subp. 4. **Intake by oral ingestion.** If the occupationally exposed individual also receives an intake of radionuclides by oral ingestion greater than ten percent of the applicable oral ALI, a licensee must account for this intake and include it in demonstrating compliance with the limits.

Subp. 5. **Intake by wound or absorption.** A licensee must evaluate and, to the extent practical, account for intakes through wounds or skin absorption. The intake through intact skin is included in the calculation of DAC for hydrogen-3 and does not need to be further evaluated.

Statutory Authority: *MS s 144.1202; 144.1203*

History: *29 SR 755*

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