DEPARTMENT OF HEALTH

Minnesota Rules, Chapter 4732 X-ray Draft Revision

INDIVIDUAL MONITORING, 1.0

Subpart 1. **Applicability.**

A. A registrant is responsible for the individual monitoring requirement in this part.

A. Occupational workers in this part includes student workers.

Subp 2. **Individual monitoring device.** Each registrant must monitor exposures from sources of radiation at levels sufficient to comply with the occupational dose limits of parts 4732.####.

A. Each registrant must monitor occupational exposure to radiation from x-ray systems under its control and must supply and require the use of individual monitoring devices by:

(1) adults likely to receive, in one year from sources external to the body, a dose in excess of 10 percent of the limits in 4732.####, subpart 2;

(2) minors likely to receive, in one year from sources external to the body, a deep dose equivalent in excess of 0.1 rem (1 mSv), a lens dose equivalent in excess of 0.15 rem (1.5 mSv), or a shallow dose equivalent to the skin or to the extremities in excess of 0.5 rem (5 mSv);

(3) declared pregnant women likely to receive during the entire pregnancy, from radiation sources external to the body, a deep dose equivalent in excess of 0.1 rem (1 mSv);

(4) each individual entering a high or very high-radiation area; and

(5) individuals working with medical fluoroscopic equipment.

Commented [TP(1]: SSRCR D.1502

Commented [TP(2]: References draft rule, occupational dose limits: rule parts that includes adult, minor, declared pregnancy, public dose

Commented [TP(3]: References draft rule, occupational dose limits: Occupational dose limits for adults: Subp. 2. Item A

B. Each individual monitoring device must be assigned to and worn by only one individual.

Subp. 3. **Evaluation for the need of individual monitoring device**. A registrant must perform an evaluation to identify if an occupational worker will exceed the dose limits in subpart 2, item A (1).

A. A registrant must use one or more of the following factors for the evaluation:

(1) the results of individual monitoring for each occupational worker after a period of six months;

(2) the results of area monitoring at the occupational worker position after a period of six months;

(3) the registrant's previous individual monitoring records;

(4) the occupational dose assessment completed by a qualified expert; or

(5) the radiation protection survey or area survey for each x-ray system.

B. Evaluations for individual monitoring must be completed using conditions representative of the x-ray system, volume of use, and proximity for each occupational worker.

Subp. 4. **Individual monitoring device location.** Each registrant must verify that individuals who are required to monitor occupational doses under subpart 2 wear individual monitoring devices according to this subpart.

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A. An individual monitoring device used for monitoring the dose to the whole body must be worn at the unshielded location of the whole body likely to receive the

highest exposure. When a protective apron is worn, the location of the individual monitoring device must be at the neck or collar.

B. An individual monitoring device used for monitoring the dose to an embryo or fetus of a declared pregnant woman according to part 4732.#### must be located at the waist under any protective apron being worn by the woman.

C. An individual monitoring device used for monitoring the lens dose equivalent, to comply with part 4732.#### must be located at the neck or collar, outside any protective apron being worn by the monitored individual, or at an unshielded location closer to the eye.

D. An individual monitoring device used for monitoring the dose to the extremities, to comply with part 4732.#### must be worn on the extremity likely to receive the highest exposure. Each individual monitoring device must be oriented to measure the highest dose to the extremity being monitored.

E. When only one individual monitoring device is used to determine the effective dose equivalent for external radiation according to part 4732.#### it must be located at the neck or collar outside the protective apron. When a second individual monitoring device is used for the same purpose, it must be located under the protective apron at the waist. The second individual monitoring device is required for a declared pregnant women.

Subp. 5. **Individual monitoring devices.**

A. All individual monitoring devices must be processed and evaluated by a dosimetry processor:

Commented [TP(5]: References draft rule, occupational dose limits: Declared Pregnancy Dose Limits

Commented [TP(6]: References draft rule, occupational dose limits: Occupational dose limits for adults: Subp. 2. Item B(1)

Commented [TP(7]: References draft rule, occupational dose limits: Occupational dose limits for adults: Subp. 2. Item B(2)

Commented [TP(8]: SSRCR D.1502 v.(3)

Commented [TP(9]: References draft rule, Dose Equivalent item B

Commented [TP(10]: SSRCR D.1501 (c)

(1) holding current personnel dosimetry accreditation from the National Voluntary Laboratory Accreditation Program of the National Institute of Standards and Technology; and

(2) approved in the accreditation process for the type of radiation or radiations included in the National Voluntary Laboratory Accreditation Program that most closely approximates the type of radiation or radiations for which the individual wearing the dosimeter is monitored.

B. The following individual monitoring devices are exempt from being processed and evaluated under item A:

(1) direct and indirect reading pocket ionization chambers,

(2) those dosimeters used to measure the dose to any extremity, and

(3) digital radiation-monitoring devices.

Subp. 6. **Individual monitoring reports; current workers.**

A. Each registrant must make individual monitoring dose information available to workers.

B. An individual worker must supply dose information to the registrant about other current occupational does received due to employment at multiple facilities.

C. A registrant must provide an annual report to each individual monitored under parts 4732. #### subparts 2, 5, and 6 of the dose received in that monitoring year if:

(1) the individual's occupational dose records exceeds 100 mrem (1 mSv) TEDE or 100 mrem (1 mSv) to any individual organ or tissue; or

(2) the individual requests their annual report.

Commented [TP(11]: Dose Limits for adults, minors and declared pregnant worker.

C. A registrant may provide the individual's request and the annual report in an electronic or a written format.

Subp. 7. **Individual monitoring; former workers.**

A. A registrant must provide a written report of an individual's exposure to radiation upon request of the individual formerly engaged in radiation activities controlled by the registrant.

B. A registrant must provide the written report required under item A within 30 days of the request or within 30 days after the registrant has determined the dose of the individual, whichever is later.

Subp. 8. **Report at end of employment.**

A. A registrant must provide a report of an individual's dose of radiation to:

(1) a worker who is terminating employment; or

(2) a worker who, while employed by another person, is terminating a work assignment involving radiation dose in the registrant's facility.

B. The report under item A must:

(1) be provided to the worker within 30 days after the exposure has been determined by the registrant;

(2) cover each calendar quarter in which the worker's activities involved exposure to radiation; and

(3) include the dates and locations of work under the registrant.

Subp. 9. **Report to individual worker exposed beyond occupational levels.**

Commented [TP(12]: 4731.1030 EXPOSURE NOTIFICATIONS AND REPORTS Subp. 3

Commented [TP(13]: 4731.1030 EXPOSURE NOTIFICATIONS AND REPORTS Subp. 4

A. A registrant must notify an individual worker who was exposed beyond the annual occupational dose limits for adults under subpart 2.

B. The report to the individual worker must include:

(1) the individual worker's occupational dose;

(2) the name of the exposed individual worker who received a dose that exceeds the limits for occupational exposure;

(3) the reporting period in which the individual worker reached the annual occupational dose limits; and

(4) the alternative work conditions that removes the individual worker from exposure to radiation.

C. A registrant may provide the report under this subpart in electronic or written form.

Subp. 10. **Individual monitoring records.**

A. A registrant must maintain records showing the radiation doses of all individuals for whom individual monitoring is required according to this part. The records must be clear and legible.

B. A registrant must retain the record required under this part until the registrant terminates its registration with the commissioner.