



HEALTH AND HUMAN SERVICES POLICY

Department: Radiology

Policy Number: 1403

Policy Title: Radiation Monitoring

Revision History: 7/01, 7/07, 11/12, 2/15, 3/18, 1/22

Revised by/Date: Lance Roeschlein

Commissioner Initials: *[Signature]* **Director Initials:** *[Signature]*

Approved by: *Jan Manary*
Jan Manary, Executive Director of Health Services

Date: 2/7/25

POLICY: Mille Lacs Band Health Services Radiology department maintains complete records of radiation monitoring for employees with the potential for radiation exposure.

AUTHORITY: Indian Health Manual, Chapter 21 and Minnesota Administrative Rules, Chapter 4732 regarding radiation monitoring.

POLICY DETAILS: The radiation safety program operates under the ALARA philosophy: As Low As Reasonably Achievable. All radiation workers shall be dedicated to the ALARA goal and be continually working toward reducing exposure to themselves, the patients, other employees and visitors. All personnel working in restricted areas are monitored by dosimetry badges. If the dosimetry badge readings are above ALARA action levels, an investigation is initiated by the radiation safety officer to determine the cause of the exposure and a means to reduce future exposures.

Employee Monitoring (Dosimeter monitoring - whole body film badges):

1. Radiation Workers are monitored for radiation exposure according to NRC guidelines.
 - a. Radiation Workers are monitored if external occupational exposure is expected to exceed 10% of the dose limit appropriate for the individual (i.e. adult, minor, or declared pregnant worker), or
 - b. The dosimetry badge is assigned to and worn by only one individual.
 - i. Badges are worn on the trunk of the body or at the unshielded location of the whole body likely to receive the highest exposure.
 - ii. If a protective lead apron is worn, the badge must be worn at the collar outside the protective apron.
 - iii. If a protective lead apron and thyroid collar is worn, the badge must be worn at the collar outside the protective apron and thyroid collar.
 - iv. Only when a protective lead apron, thyroid collar and lead equivalent glasses are worn, the badge must be worn at the collar and inside (or behind) the protective lead equipment.
 - v. When the dosimetry badge is not in use, the badge is left in a specified area within the Department.
 - c. Badges are read by contracted agency. Exposure limits are as follows:
 - i. Annual limit for Radiation workers is 5 Rem (0.05 Sv) Total Effective Dose Equivalent (TEDE)
 - ii. Total organ dose equivalent to a single organ or tissue (other than lens of the eye) is 50 Rem (0.5 Sv) Total Occupational Dose Equivalent (TODE)
 - iii. Total lens dose equivalent is 15 Rem (0.15 Sv)
 - iv. Total shallow dose equivalent to the skin or to any extremity is 50 Rem (0.5 Sv)
 - v. Annual limit for Non-radiation workers is 0.1 Rem (0.001 Sv) Total Effective Dose Equivalent (TEDE)



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- vi. Total embryo/fetus exposure limit during the entire gestation period is 0.5 Rem (.005 Sv)
- d. If an individual monitoring device is lost or damaged the Radiation Safety Officer will request the worker to cease work immediately until a replacement is provided and the dose is calculated for the time period from issuance to loss or damage.
- e. When action levels as determined by the Nuclear Regulatory Commission (NRC) are exceeded, NRC Guidelines are followed and:
 - i. Individual is notified if action levels I or II is reached.
 - ii. The radiation precautions of individuals who reach these action levels are evaluated by the Radiation Safety Officer and recommendations made.
- f. Notification and reports to individual workers
 - i. Records of all monitoring activities performed on individuals must be kept on file by the monitoring department for the lifetime of the individual worker or a minimum of 30 years after termination of employment with the facility, whichever is less.
 - ii. Each radiation worker will be notified of their exposure levels annually in writing. If a dosimetry report is requested by a worker it will be provided to them within 30 days from the time the request is made.
 - iii. Upon termination of employment, all occupational workers will be provided a summary of their exposure history within 30 days after the exposure has been determined by the registrant.
 - iv. For all new employees requiring radiation monitoring a letter will be sent to the previous facility to obtain their occupational exposure history, unless the employee has the information in their possession.
 - v. If the new employee does not provide a previous dose history, the allowable dose limits for the individual is reduced by 1.25 Rem (12.5 mSv) for each quarter for which records were unavailable and the individual was engaged in activities that could have resulted in occupational radiation exposure. The dose that individual may be allowed to receive in the current year will be reduced by the amount of occupational dose received while employed by any other person during the current year.
 - vi. The employee must supply information to the registrant about other current occupational doses received due to employment at multiple facilities.

2. Non-Radiation Workers - Because of the low level of exposure to non-radiation workers, monitoring is not indicated.

Investigation Levels (mrem per calendar quarter):

Organs	<u>Level I</u>	<u>Level II</u>
Whole body (total effective dose equivalent)	125	375
Individual organs except lens (Sum of deep dose equivalent and committed dose equivalent)	1,250	3,750
Lens of eye	375	1,125
Skin or extremity	1,250	3,750

Note: Investigation levels I and II are one tenth and three tenth, respectively, of the applicable regulatory limits.



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