

Dosimetry Monitoring for Users of X-Ray Equipment

In instances which operators may be partially or completely within the regulated area during operation or maintenance of x-ray equipment (IE no shielding between equipment and operator), exposure monitoring may be required. Determination of the need for exposure monitoring will be made by the Radiation Safety Officer at the time of the initial registration, during consultation for changes to device or safety equipment configuration, or during periodic audits.

TLD badges are used at NAU to monitor personnel for exposure of the body to penetrating ionizing radiation such as gamma and x-rays, and exposure of the skin to less penetrating radiation such as beta particles. For most individuals, results of the TLD badge readings are also used as estimates for the exposure of the lens of the eye. TLD badges are required for operators of most analytical x-ray equipment at NAU. They are not required for some cabinet type equipment.

TLD badges must be worn on the trunk of the body at or above the waist. Dosimetry devices must not be taken home or left in laboratory areas where they may be exposed to radiation or excessive heat or humidity.

Ring dosimetry devices are used at NAU to monitor for radiation exposure to the hands are issued to most personnel using analytical x-ray equipment. Ring badges must be worn with the sensitive portion of the ring towards the source.

TLD badges and rings are exchanged on a quarterly basis. NAU EH&S personnel hand deliver badges and rings to department offices during the last few days of each quarter. Used dosimetry devices must be picked up by, or hand delivered to NAU EH&S. Dosimetry devices should be returned to NAU EH&S during the first 5 working days of the new quarter. Campus mail must not be used. This policy has been established to avoid exposure of TLDs and rings to sources of radiation, heat, and humidity during transit and maintain the chain of custody.

Periodically, dosimetry devices are lost or damaged. This should be reported to NAU EH&S staff immediately so that replacement dosimeters can be issued.

Additional Details on X-Ray Equipment Safety may be found in the NAU [X-Ray Program Manual](#).

Contact and additional program information for NAU EH&S safety personnel and programs is available on the EH&S Website <http://nau.edu/Research/Compliance/Environmental-Health-and-Safety/> or by using the EH&S switchboard email regulatorycompliance@nau.edu or switchboard phone number (928)-523-7288.