

DOSIMETRY INFORMATION SHEET – Revised 03/20/2026

Background

Dosimeters are personnel monitoring devices that measure the amount of external radiation a worker may be exposed to. They are small passive devices that are typically worn at the torso or on the collar outside of a lead apron. After the dosimeter is worn for a set period of time (usually a month or a quarter), the dosimeter is sent out and processed to record the cumulative exposure to the worker. This radiation dose then becomes the worker’s “dose of record” for that period. Dosimeters serve a critical role in ensuring that potential staff exposures are As Low As Reasonably Achievable (ALARA) and within regulatory dose limits. As such, if dosimeters are assigned to your Department or Lab, it is essential that dosimeters are worn properly, stored properly, only worn by the user named on the dosimeter, and returned in a timely manner.

Who Should Wear Dosimetry?

Dosimetry is *REQUIRED* for the following:

- Adults likely to receive, in 1 year from sources external to the body, a dose in excess of 10 percent of the limits in the table below, in the “Radiation Dose Limit for Adults” Column.
- Minors likely to receive, in 1 year from radiation sources external to the body, a deep dose equivalent in excess of 100 mrem, a lens dose equivalent in excess of 150 mrem, or a shallow dose equivalent to the skin or to the extremities in excess of 500 mrem.
- Declared pregnant individuals (see “information for pregnant users” section) likely to receive during the entire pregnancy, from radiation sources external to the body, a deep dose equivalent in excess of 100 mrem.
- Individuals entering a high or very high radiation area.
 - A “high radiation area” exists when a radiation source may expose an individual to 100 mrem in one hour at a distance of 30 cm from the source or source shielding.
 - A “very high radiation area” exists when a radiation source may expose an individual to 500 rad in one hour at a distance of 1 m from the source or source shielding.

Dosimetry is *RECOMMENDED* for the following:

- Radioactive material users who work with gamma/photon emitters or high-energy (> 70 keV average) beta emitters in mCi amounts on a weekly basis or 5 mCi or more at any one time.
- Staff who work in the procedure room or control room of a radiation-producing machine that is likely to expose them to 5 mR/hr or more as part of their regular duties.
 - This condition typically applies to staff who work around Fluoroscopy, CT, and other x-ray machines, and staff required to wear lead aprons.

Health Physics/Radiation Safety

Health Physics can help you determine if you or members of your department are *required* or *recommended* to be assigned dosimetry. Please call Health Physics at (650) 723-3201 and ask for the Dosimetry Coordinator.

Information for Pregnant Users

Pregnant workers may *choose* to declare their pregnancy through a form submitted to Health Physics. This declaration can be made to Health Physics confidentially and it may be rescinded at any time. The fetus of a declared pregnant worker has a dose limit of 500 mrem. Once a worker declares their pregnancy, Health Physics will provide consultation on what control measures, if any, are needed to ensure that the dose to their fetus is ALARA and below this regulatory dose limit.

Radiation Dose Limits

Radiation Dose Term	Radiation Dose Limit for Adults
<p><u>Total Effective Dose Equivalent (TEDE)</u> <i>This is the whole-body dose limit from both external and internal sources. The external component is typically determined by the Deep Dose Equivalent (DDE), as reported on dosimetry reports, measured at a tissue depth of 1 cm.</i></p>	5 rem (5,000 mrem) per year
<p><u>Lens Dose Equivalent (LDE)</u> <i>This is the dose to the lens of the eye, measured at a tissue depth of 0.3 cm.</i></p>	15 rem (15,000 mrem) per year
<p><u>Shallow Dose Equivalent (SDE)</u> <i>This is the dose to the skin of the whole-body or extremities, measured on whole-body dosimeters and ring extremity dosimeters at a tissue depth of 0.007 cm.</i></p>	50 rem (50,000 mrem) per year
<p><u>Total Organ Dose Equivalent (TODE)</u> <i>This is the dose limit of the highest exposed organ from both external and internal sources. The external component is typically determined by the Deep Dose Equivalent (DDE), as reported on dosimetry reports, measured at a tissue depth of 1 cm.</i></p>	50 rem (50,000 mrem) per year

Other Limits:

- The annual dose limits for minors is 10% of the limits described in the table above.
- The dose limit to the fetus of a *declared pregnant worker* throughout the entire pregnancy is 500 mrem.

Questions? Contact Health Physics at (650) 723-3201!