

Personnel Dosimeters

X-Ray Facility Tips | March 2026

Dosimeters can help you understand the dose of radiation you and your personnel are exposed to on the job. Measurements from a dosimeter can help identify unexpected sources of high exposure or undesirable practices. They also indicate compliance with occupational dose limits (5,000 millirem per year) and provide documentation of annual and lifetime dose.

If you need help accessing or understanding this information, contact AHS.VDHRadiologicalHealth@vermont.gov.

Personnel

- Your facility must provide personnel dosimeters to all employees who are likely to exceed 500 millirem per year to their whole body (10% of the occupational dose limit) through occupational exposure.
- Occupational exposure does not include doses received from background radiation, from any medical procedure the individual may have received, or as a member of the public.
- Dosimeters are recommended for personnel whose radiation exposures are below the occupational limit and where there is very little potential for accidental exposure.

Pregnant Personnel

- Once an employee announces their pregnancy, the dose limit to the fetus is 50 millirem per month, or 500 millirem for their entire pregnancy.
- Personnel dosimeters must be available for pregnant, occupationally exposed personnel who are expected to exceed this limit.
- Pregnant personnel should wear at least one dosimeter outside any personal protective equipment (lead apron) at the waist level, or wear two: one outside the lead apron to determine employee dose and one at waist level under the lead apron to determine fetal dose.

Dosimeter Location

- Wear the personnel dosimeter between your chest and waist.
- Do not keep the dosimeter in a pocket.

- If your facility uses handheld x-ray devices, consider providing ring dosimeters to employees to measure exposure to the hands.

Getting a Dosimeter

- Personnel dosimeters must be obtained from a National Voluntary Laboratory Accredited Program (NVLAP)-accredited laboratory to ensure accuracy and reproducibility.
- These laboratories distribute dosimeters on a monthly or quarterly basis, and facilities return them after the appropriate time period for readout and report.
- If your facility has a low radiographic workload, replacing dosimeters quarterly may provide more accurate results at a lower cost. However, longer intervals may not allow for timely detection of unexpected high exposures or undesirable practices.

Dosimeter Reports

- You must review dosimeter reports with employees and keep evidence of this review.
- If an employee requests a report of their personal exposure, your facility should provide this report within 30 days of the request.
- Provide the report to employees upon termination of employment or occupational exposure to radiation.