X-Ray Safety Retraining 2021/2022
XRD and XRF Systems

Training

- All authorized x-ray equipment operators must complete the appropriate x-ray safety training starting at https://ehs.yale.edu/trainings/x-ray-safety.
- Area frequenters (persons not involved in x-ray activities) must be informed about the presence of x-ray generating equipment and of the rules to follow. See https://ehs.yale.edu/x-rays for more info.

Dosimetry

- To request dosimetry badges, please visit: https://ehs.yale.edu/sites/default/files/files/radiation-service-monitoring.pdf
- Wear your badge whenever using x-rays equipment. Wear your badge at the collar outside of any lead apron. Store badge away from radiation when not being used.
- Never share badges or intentionally expose badges to radiation.
- Return badges in a timely manner at the end of the wear period.

Security

- Turn off your equipment when not in use.
- Always secure keys when x-ray unit is not in use.
- Do not post passwords nearby x-ray control computers and do not leave any keys with your equipment.
- Only trained authorized users should have access to the unit keys.

XRD and XRF Setup

- DO NOT attempt to handle, manipulate, or adjust any object (sample, sample holder, collimator, etc.) which is in the direct beam path while the beam is on.
- Never place your hands or other body parts in the x-ray beam.
- For computer-controlled runs, check and ensure that the runs are complete before making any adjustments.

Unit Malfunction

- If the x-ray unit appears to malfunction, remove it from service immediately.
- Contact your supervisor and the service representative as soon as possible.
- Make certain other users are aware that the unit is out of service and notify Radiation Safety at the EHS main line 203-785-3550.

New Use or Termination of Use

- Contact EHS prior to purchase, relocation, transfer, donation, or disposal of an x-ray unit to ensure all work is handled correctly and in accordance with Connecticut Department of Energy and Environmental Protection regulations. Ionel Hau is the EHS contact for X-ray Safety matters – ionel.hau@yale.edu

---

Emergency Procedures

- If you have, or think you have, placed any body part in the path of the primary beam, if there is a suspicion of an x-ray exposure or for any other x-ray related emergency, call the EHS emergency line at 203-785-3555. This line is staffed 24 hours per day, seven days per week.

Questions or concerns? Contact Radiation Safety at 203-785-3550.

Personal Radiation Dosimetry

Personal radiation dosimetry is worn by users of radioactive materials and x-ray equipment operators. Individuals assigned personal dosimetry must wear their dosimeters when working with radiation to track and monitor external radiation exposures and ensure that exposures are being kept As Low As Reasonably Achievable (ALARA).

Current Whole-Body dosimeter style

Extremity Dosimeter

Whole-Body dosimeter style beginning in Q1 of 2022

Dosimeters are a passive device used to measure radiation exposure. They do not offer active protection from radiation. Dosimeters provide the legal dose of record for each assigned user. Once a dosimeter is assigned, it must be tracked, and a dose assigned. Therefore, it is crucial that all assigned dosimeters are returned in a timely manner after their wear period ends. Please see below for important information on wear periods, dosimetry delivery from EHS, return of old dosimetry to EHS and requesting a new personal dosimeter.

Dosimetry Wear Periods	Most dosimetry is distributed on a quarterly frequency, on the first working day of the new quarter. The normal quarterly wear period schedule is shown below: • Wear period 1 (Q1): January 1st to March 31st • Wear period 2 (Q2): April 1st to June 30th • Wear period 3 (Q3): July 1st to September 30th • Wear period 4 (Q4): October 1st to December 31st. Some dosimetry is assigned on a monthly wear period. Monthly dosimeters are distributed on the first working day of each month. The end date of the wear period shown on the dosimeter does not mean the dosimeter no longer functions after that date. However, dosimeters should only be worn beyond the wear period end-date until the proper exchange for new dosimetry has occurred.
Delivery of Dosimeters by EHS	On the first working day of the new wear period, dosimeters are sent by EHS through campus mail to departmental mailrooms - not directly to individual labs. If you cannot locate your new dosimeter, please check with your departmental administrator who collects the mail or in your designated mailroom prior to contacting EHS.
Return of Dosimetry to EHS	Once you have received dosimetry for the new wear period, it is important to send back to EHS the old dosimetry from the previous wear period to allow for timely processing. Timely processing of dosimetry is critical to catching above ALARA level exposures (≥ 100 mrem whole-body, or ≥ 1000 mrem extremity). All dosimetry issued, even unused dosimeters, must be returned to EHS. To return: 1. Collect old dosimeters and place them in the return bag that is provided in the new bag of dosimeters. This should be done the same day that you receive the new dosimeters (or close to this as possible) so that processing times are not delayed; 2. Drop off the return bag at a campus mailroom to be returned to EHS by campus mail; OR drop off in person at 135 College Street, Suite 100 during normal business hours (8:30 am–5:00 pm, Monday–Friday).
Requesting a Dosimeter from EHS	Dosimetry may be obtained following completion of the required radiation safety training programs and by submitting a Radiation Monitoring Service Form & Guidelines: https://ehs.yale.edu/sites/default/files/files/radiation-service-monitoring.pdf