

Radiation Safety Department

Contact Information:

(865) 974-5580, radiationsafety@utk.edu <http://radiationsafety.utk.edu>

Emergency Contact: After business hours, Call UT Police: (865) 974-3111

Scope:

- I. All ionizing radiation sources: Radioactive Materials, X-ray devices, Particle Accelerators.
- II. Non-ionizing: High Power Laser Systems (Class 3B or 4).

We oversee all permitting, training, hazard control, exposure monitoring, environmental monitoring, receipt and disposal for these materials and systems used for research, service, or academic purposes.

Permits and Machine Registrations:

Permits for radioactive materials and x-ray devices are issued by the Radiation Safety Committee. High power lasers must be registered with Laser Safety Program. Information can be found on our website.

Training Requirements:

Radiation Safety Training Courses should be completed *before* an individual works in the lab with the hazard. Our courses are offered in-person or through Canvas. Safety courses supporting work with radioactive materials require annual refresher training. X-ray safety and Laser safety courses require a refresher every 2 years. Training is required for both research and academic teaching hazards.

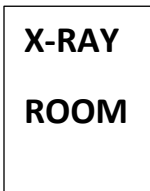
Hazard Communication:

Ionizing Radiation Sources:



Yellow and Magenta with a tri-foil symbol is the universal symbol for ionizing radiation sources.

Sign used for doors, storage locations, equipment, and sources



Some X-ray machines require a door sign that states "X-ray Room"

Class 3B or 4 Lasers:



Class 3B or 4 lasers require this type of door signage that will either state "Warning" or "Danger." Miniature versions of this sign will be placed on the laser product, as will hazard statements.



This symbol will be found on the laser product itself.

Inspections:

Inspections or Hazard Evaluations performed by Department staff on following rotation:

- Open Source Radioactive Materials: Quarterly
- Sealed Source Radioactive Materials: Quarterly or Semi-Annually
- X-ray Device: Annually or Every 2 Years.
- Laser Systems: Every 2 Years.

Security:

All radioactive sources should be secured from unauthorized removal when unattended. Most x-ray and Class 4 laser devices also require security means so that a person cannot enter a room and energize an x-ray tube or laser device.

Any visitors to a lab: Facility Services, housekeeping, vendors, collaborators, or other students, should find these items secure within a laboratory. If visitors are attending a demonstration, or could be exposed to ionizing or laser sources, we can provide a visitor hazard summary with explanation of risk.

Receipt and Disposal:

Radiation Safety needs to be notified of all purchases and all receipt of radioactive materials including:

- Radioactive sealed sources – small activity button sources or larger sources that could be embedded into instruments like Electron Capture Devices or Static Elimination Devices.
- Uranyl or Thorium chemical compounds purchased through standard chemical companies.
- Research samples that contain radioactive materials.
- X-ray machines, X-ray tubes, or particle accelerators.
- Class 3B or 4 lasers

All radioactive items should be disposed by Radiation Safety. Documentation will be needed for any disposals of X-ray tubes. We need to be notified when laser systems are disposed.

X-ray Device Purchases or Movement of Existing Machines:

The State of Tennessee requires that we submit a registration form within 10 days of an x-ray tube arriving on campus, or when an existing machine is moved to a new location. Radiation Safety should be well informed for planned moves and new purchases. Failure to submit the required form could cause a monetary fine to the university of up to \$50,000.

Areas where Department Safety Officers Can Help:

- Identify when we should be contacted.
- Have Faculty or Business Managers contact us when new X-ray equipment is bought, or serviced.
- Helping us identify Laser systems that may not be currently registered.
- Identifying old or faded door signs.
- Identifying abandoned items like labeled equipment, waste, or other items.