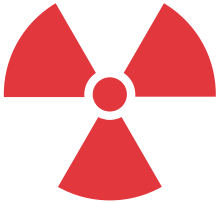


## Radiation Safety Awareness Guide

Environmental Health and Safety (EH&S) has developed this guide to provide basic radiation safety information for ancillary personnel (custodial, facilities, and public safety staff) who occasionally work in areas posted with the radiation symbol. Ancillary personnel are not allowed to use or handle radioactive materials.



### The Radiation Symbol

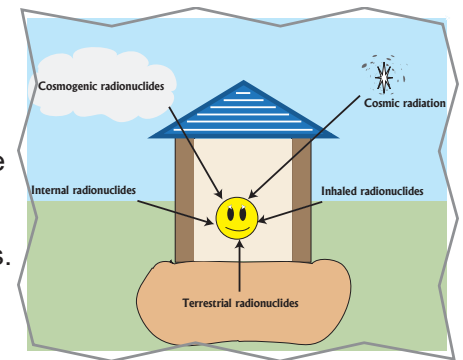
All radioactive materials and radiation-producing devices must be labeled with the universal symbol for radiation.

Only personnel properly trained by EH&S should handle materials or devices labeled with the radiation symbol.

### What is Radiation?

Radiation is the emission of energy from matter. There are two types of radiation: non-ionizing and ionizing radiation. Non-ionizing radiation includes both visible and ultraviolet light. Ionizing radiation (radiowaves, infrared, etc.) has sufficient energy to cause chemical changes to biological molecules. A large exposure to ionizing radiation may damage cells or tissues. Sources of ionizing radiation on campus are radioactive materials and x-ray machines.

Radiation has always been present on earth and is part of our natural surroundings. Background radiation is the term used for radiation found in nature. Some natural sources of background radiation include radon in the air we breathe, the food we eat, the wood and concrete in building materials, cosmic radiation, and the rocks and soil.



Besides being a valuable research tool, radiation is also used by professionals to diagnose and treat many illnesses. Radiation is also found in common household products, such as smoke detectors.



### What is a Radiation Exposure?


A radiation exposure is the amount of energy from ionizing radiation that is absorbed by your body. State and federal regulations limit the radiation exposure for a member of the general public or a non-radiation worker to 100 mrem per year (from university operations).

In comparison, the average background radiation exposure for a person living in Iowa is 360 mrem per year – a typical chest x-ray delivers a radiation dose of about 10 milirem.

### Radiation Laboratories

There are many laboratories at Iowa State University using radiation in research. They are identified by the radiation symbol on the door tag. Before performing any task in these laboratories, ancillary personnel should contact the laboratory supervisor or principal investigator to see what precautions may need to be taken.

**Radionuclide Laboratory**  
**CAUTION,**  
**RADIOACTIVE MATERIAL(S)**



Nuclide(s): \_\_\_\_\_  
P.I. \_\_\_\_\_ Tel. # \_\_\_\_\_  
Alt. P.I. \_\_\_\_\_ Tel. # \_\_\_\_\_  
Lab Contact \_\_\_\_\_ Tel. # \_\_\_\_\_

**In Case of Emergency, Call:**  
EH&S at 294-5359

**Weekends, Holidays, and After Hours, Call:**  
Public Safety at 294-4428

Last Update: \_\_\_\_\_

## Rules to Follow

There are minimal risks associated with using ionizing radiation. These risks are no greater than other common activities (such as using power tools, climbing a ladder, or using electricity). By following these few basic rules and avoiding radiation sources, you can ensure your safety while working in areas posted with the radiation symbol.

- Follow all room postings carefully.
- Announce yourself and state your purpose when entering a lab.
- Ask the laboratory personnel to identify areas that should be avoided.
- If no one is present in the lab, contact the principal investigator or laboratory supervisor by calling the numbers listed on the door.
- Do not handle anything labeled with the radiation symbol (unless directed by the laboratory supervisor, principal investigator, or EH&S).
- Call EH&S at (515) 294-5359 if you have any questions or concerns.

## What should I do if...

### *...there is an emergency?*

If there is a personal injury or other major emergency (such as a fire), follow the normal emergency procedure and disregard any concern about radiation exposure. The potential for receiving any measurable radiation dose is minimal. After the emergency is over, evacuate the area and contact EH&S for assistance.

### *...there is a spill?*

If the spill is in a radiation laboratory or involves radioactive material, do not attempt to clean up the spill yourself. Secure the area and call EH&S and contact listed on the door tag for assistance.

### *...I have to repair equipment?*

You should never attempt to repair equipment with a radiation symbol unless it has been checked by EH&S and declared free of radioactive contamination.

### *...I have to repair facilities?*

All areas within a building that potentially contaminated with radioactive material are labeled with the radiation symbol. Notify EH&S before repairing drains, air ducts, or other structures labeled with the radiation symbol.

