

Radiation Safety

1. GENERAL

Radiation is broadly classified into two categories: ionizing and non-ionizing. Ionizing radiation is that which has sufficient energy to ionize (remove electrons from) the atoms with which it interacts. Examples of ionizing radiation include emissions (such as alpha or beta particles, gamma rays, and neutrons) from radioactive materials, x-rays, and emissions from particle accelerators. Conversely, non-ionizing radiation does not have sufficient energy to ionize other atoms. Examples of non-ionizing radiation include lasers, electric and magnetic fields, ultraviolet light, microwave and radiofrequency radiation, and extremely low frequency radiation.

Where sources of ionizing radiation or high power lasers exist, regulations typically require licensure or registration of sources. Under this type of control, safety programs are required for the protection of students, employees, and the public from the potential hazards.

2. REQUIREMENTS FOR IONIZING RADIATION SAFETY

- 2.1 Each component shall adopt rules or programs as necessary to control and monitor licensed or registered sources of ionizing radiation possessed or used by the component. These programs shall comply with the applicable state regulations contained in Title 25 Texas Administrative Code (TAC) Chapter 289, administered by the Texas Department of Health, Bureau of Radiation Control (TDH BRC) or the applicable federal regulations contained in Title 10 of the Code of Federal Regulations (10 CFR) administered by the U.S. Nuclear Regulatory Commission.
- 2.2 Each component having previously buried or otherwise disposed of licensed radioactive materials on property controlled by that component shall adopt programs as necessary to control and monitor disposal of licensed radioactive materials in accordance with the applicable rules contained in 30 TAC 336. The Texas Natural Resource Conservation Commission administers these regulations.
- 2.3 The uses of licensed or registered sources within some components may be relatively small. Such components may elect to demonstrate compliance with 2.1 or 2.2 above by establishing an agreement(s) with another component to provide necessary radiation safety services. Except for the licensed or registered activities at the TEES Nuclear Science Center and the AGN-201 reactors, all licensed or registered operations on the TAMU campus (including contiguous properties) shall be subject to the radiation safety programs and licenses/registrations administered by TAMU.

3. REQUIREMENTS FOR NON-IONIZING RADIATION SAFETY

- 3.1 Each component should identify significant non-ionizing radiation sources and evaluate the need for a non-ionizing radiation safety program. Components with operations on the TAMU campus should coordinate with the TAMU Environmental Health and Safety Department.
- 3.2 Lasers are a special class of non-ionizing radiation producing devices that are regulated by state regulations contained in 25 TAC 289.301. High power lasers (class IIIb and IV) must be registered with the Texas Department of Health, Bureau of Radiation Control. Each affected component should designate one or more departments or units to administer the registration(s) for the component and oversee compliance with applicable rules.
- 3.3 Entertainment laser usage (laser light shows) must be permitted by the TDH BRC. Such permitting is normally the responsibility of the entertainment contractor.
- 3.4 Many sources of non-ionizing radiation are regulated by rules and restrictions that are imposed on manufacturers rather than consumers/users. Nevertheless, components that possess such sources should establish programs or procedures to address the safe use of such devices. Several standards and guidance documents are available that provide criteria for safety programs for different types of non-ionizing radiation sources. Contact the office of Risk Management and Safety for appropriate reference standards.

Contact for Interpretation
History

Office of Risk Management and Safety
New standard

Recommendation

Chair, Risk Management and Safety Council

Date

Legal Sufficiency

General Counsel

Date

Approval

Director of Office of Risk Management and Safety

Date