



8.5.2 Radiation Safety

Chapter 8 - Health & Safety	Original Effective Date: June 2000
Section: 8.5 Environmental Health and Safety Office	Date Last Reviewed: May 2021
Responsible Entity: Vice President for Facilities and Capital Planning	Date Last Revised: May 2021

I. Purpose

The purpose of the UT Health San Antonio's Radiation Safety Program is to assist in all levels of management in fulfilling the UT Health San Antonio's commitment to furnish a place of employment and learning that is free as possible from recognized radiation hazards that are likely to cause harm to UT Health San Antonio personnel or community.

II. Scope

This policy applies to all individuals institution-wide that work with radioactive materials or have a potential exposure to radiation hazards.

III. Policy

A. Overview

UT Health San Antonio (UTHSA) has been issued a broad-scope radioactive material use license, x-ray registration, and laser registration by the Texas Department of State Health Services (DSHS), Radiation Control Program permitting the Radiation Safety Committee to issue and withdraw authorizations for using radiation sources at UTHSA. Before a Principal Investigator (PI) may acquire any quantity of radioactive material, any radiation-producing device, or laser whether by purchase, loan, or gift, the Radiation Safety Committee must approve an application for its use

B. Use of Radioactive Materials

1. An authorized user is a person who by virtue of position, training, and experience, is permitted by the Radiation Safety Committee to hold a “sub-license” of the UTHSA broad-scope license. This authorization permits the purchase and use of radioactive materials under the supervision of the authorized user, provided that the materials are used within the submitted protocol guidelines and [Radiation Safety Handbook](#).

8.5.2 Radiation Safety

2. The Radiation Safety Committee or the Radiation Safety Officer (RSO) may suspend or withdraw authorization to possess and use radioactive material for failure to observe and comply with any condition of the authorization or the [Radiation Safety Handbook](#).
3. The RSO is responsible for investigating incidents and monitoring and implementing policies relating to radiation safety. The RSO is the Radiation Safety Committee's representative regarding radiation protection at UTHSA. Any changes relating to an authorized user's protocol must be related to the Radiation Safety Division in writing. These amendments may include possession limits, laboratory location, personnel changes, and the termination of work.

C. Responsibilities

1. Environmental Health and Safety (EH&S) Department

The EH&S Department is responsible for establishing safety standards, regulations, guidelines, and programs designed to assure compliance with federal, state, and local rules and regulations. Environmental Health and Safety encompasses radiological, chemical, biological, physical safety and environmental protection.

2. Radiation Safety Officer (RSO)

- a. Review all proposals for use of radioactive sources and recommending action to the Radiation Safety Committee and the Radioactive Drug Research Committee.
- b. Inspect facilities and equipment through radiation safety evaluations and monitoring all facilities in which radioactive material is used, or radiation-producing equipment resides.
- c. Prescribe special conditions and requirements as may be necessary for safe and proper use of all radiation sources in UTHSA research, education, and patient care.
- d. Act as consultant in the design of all new facilities using radioactive material for the purpose of providing protection against radiation exposure.
- e. Prepare special conditions and requirements as may be necessary for safe and proper use of all radiation sources in UTHSA research, education, and patient care.
- f. Authorize, receive, store, and process incoming radioactive material orders.
- g. Supervise, package, monitor and record the disposal of radioactive waste.
- h. Provide personnel monitoring services, including the review, and recording of commercially processed dosimeter reports.
- i. Perform six (6) month leak testing on all non-exempt registered sealed sources.

8.5.2 Radiation Safety

- j. Complete or provide internal dose assessment in accordance with the conditions of the University's license or when ingestion of radioactive materials is suspected.
 - k. Execute environmental surveys as required.
 - l. Prepare license applications, amendment applications, and required reports as well as act as the primary contact for correspondence with state radiation control authorities on a timely basis.
 - m. Investigate incidents involving radiation exposures including overexposures, incidents, theft, loss of sources, and accidents.
 - n. Notify the Texas Department of State Health Services of all reportable incidents including overexposures, theft, loss of sources and submit reports as required.
 - o. React to any situation that is imminently dangerous to life and health and/or not in compliance with regulatory standards or University policy. Corrective actions shall include the authority to stop or shut down use of radiation sources until the situation is deemed safe by the RSO.
 - p. Conduct an annual Radiation Protection Program Review at the direction of the Radiation Safety Committee.
 - q. Direct and supervise emergency response and decontamination efforts.
 - a. Ensure that radiation doses are maintained as low as reasonably achievable (ALARA).
 - r. Maintain records of the radiation protection program.
3. Radiation Safety Division

Under the direction of the RSO, the Radiation Safety Division, will:

- a. Conduct safety evaluations of facilities and equipment through performing radiation surveys and monitor all facilities in which radioactive material is used, or radiation-producing equipment resides. Surveys include contamination and record checks.
- b. Authorize orders, receive, store, process, and dispense radioactive material and maintain records on all of the preceding transactions.
- c. Supervise, package, monitor and record the disposal of radioactive waste.
- d. Perform semi-annual leak testing on all non-exempt registered sealed sources.
- e. Perform or provide internal dose assessment in accordance with the conditions of the University's license or when ingestion of radioactive materials is suspected.
- f. Perform environmental surveys as required.

8.5.2 Radiation Safety

- g. React to any situation that is imminently dangerous to life and health and/or not in compliance with regulatory standards or UTHSA policy. Corrective actions shall include the authority to stop or shut down use of radiation sources until the situation is deemed safe by the RSO.
 - h. Perform emergency response and decontamination efforts.
 - i. Perform laboratory evaluations and instrument calibrations.
4. Principal Investigator (PI)
- a. Obtain required radioactive material authorization. Before experiments are performed, the PI is expected to determine the types and amount of radiation or radioactive material to be used. This generally indicates the protection required. A written procedure involving the use of radioactive material is to be outlined. In any situation where there is an appreciable radiation hazard, the RSO is to be consulted before proceeding.
 - b. Instruct employees in the use of safe clinical and laboratory techniques.
 - c. Ensure individual responsibilities are properly carried out.
 - d. Ensure that all persons using radioactive material under their authorization are familiar with and comply with radiation safety policies outlined in the [Radiation Safety Handbook](#).
 - e. Furnish the Radiation Safety Office information concerning individuals and activities in their areas, such as:
 - i. Personnel changes
 - ii. Laboratory location changes
 - iii. Any major change in operational procedures and new techniques
 - iv. Any alterations in the laboratory (e.g., the removal of radiochemical fume hood) that are anticipated.
 - f. Comply with the applicable regulations and policies governing the safe use of radioactive materials, including:
 - i. Maintain proper procedures for the procurement of radioactive materials by purchase or transfer.
 - ii. Post appropriate signage in areas containing radiation sources in order to notify personnel of hazards where radioisotopes are kept or used, or where radiation fields may exist.
 - iii. Record the receipt, use, transfer, and disposal of radioactive materials in their area. This includes sealed sources, such as ion sources n gas chromatographs, static eliminators, and liquid scintillation counters.
 - iv. Ensure appropriate security of radiation sources under their authority.

8.5.2 Radiation Safety

- v. Assure that all radioactive waste materials are consigned to the Environmental Health and Safety RSO for disposal.
 - vi. Ensure contamination surveys are performed at the necessary frequency and maintain a written record of the survey results.
 - vii. Have all records available for inspection by the Radiation Safety Office or the Texas Department of State Health services during normal working hours including the current copy of the [Radiation Safety Handbook](#) in each laboratory where radiation sources are being used or stored.
 - viii. Ensure that radiation doses are maintained as low as reasonably achievable.
 - ix. Follow emergency procedures outlined in the [Radiation Safety Handbook](#).
 - x. Ensure that appropriate personal protective equipment is worn by all laboratory personnel.
 - xi. Follow policy of no eating, drinking, smoking, or applying cosmetics in the laboratory.
 - xii. Label all radiation sources properly.
 - g. Require that all personnel attend mandatory radiation safety training.
 - h. Comply with proper procedure upon termination of association with UTHSA. Particular care should be exercised to see that specialized equipment, such as personal monitoring devices, (e.g., dosimeter badges), survey instruments, and shielding materials are returned to the Radiation Safety Office.
5. Individual Faculty, Staff and Students

All personnel of UTHSA and University Health System are expected to:

- a. Wear personnel dosimeters when appropriate based on the radiation risk. Utilizing all appropriate laboratory measures including:
 - i. Wear all appropriate care personal protective equipment including gloves, eye protection, and laboratory coats.
 - ii. Not wear shorts or open toed shoes within the laboratory.
 - iii. Use protective barriers and other shields when possible.
 - iv. Use mechanical devices whenever their aid will reduce exposure.
 - v. Pipette with mechanical devices only - never pipette radioactive solutions by mouth.
 - vi. Perform radioactive work within the confines of an approved hood unless serious consideration has indicated the safety of working in the open. All iodinations and handling of unbound radioiodine solutions are to be carried out in an approved chemical fume hood.

8.5.2 Radiation Safety

- vii. Follow the policy of no smoking, drinking, eating, or applying cosmetics in radioisotope laboratories.
 - viii. Maintain personal safety by not working with radioactive materials if there is a break in the skin and washing hands upon completion of radioactive material use.
 - ix. Check the immediate radioactive material work areas, e.g., hoods, benches, etc., according to Chapter 8.3.2 of the [Radiation Safety Handbook](#), for contamination. A record is to be maintained of these surveys, including results which are entirely negative. Any contamination observed is to be cleaned, resurveyed, and actions recorded.
 - x. Keep the laboratory neat and clean. The work area is to be free from equipment and materials not required for the immediate procedure.
 - xi. Keep or transport materials in such a manner as to prevent breakage or spillage (double container), and to ensure adequate shielding.
 - xii. Keep work surfaces covered with plastic backed absorbent material to limit and collect spillage in case of accident.
 - xiii. Label and isolate radioactive waste.
 - xiv. Label equipment, used for radioactive material, such as glassware and pipetters. Once used for radioactive substances, equipment is not be used for other work.
 - xv. Ensure that contaminated equipment is not sent from the area to central cleaning facilities, repair shops, or to surplus, until demonstrated to be free of contamination.
 - xvi. Request Radiation Safety Office supervision of any emergency repair of contaminated equipment in the laboratory by shop personnel or by commercial service contractors. At no time shall servicing personnel be permitted to work on equipment in radiation areas without the presence of a member of the laboratory staff to provide specific information.
 - xvii. Immediately report accidental inhalation, ingestion, or injury involving radioactive material to supervisor and the RSO and carry out their recommended corrective measures. The individual will cooperate in any and all attempts to evaluate the individual's exposure.
 - xviii. Carry out decontamination procedures when necessary and take the appropriate steps to prevent the spread of contamination to other areas.
 - xix. Comply with requests from the Radiation Safety Office for body burden measurements of the thyroid and the submission of urine samples for radioassay.
- b. Ensure that security procedures outline in the [Radiation Safety Handbook](#) are followed.

8.5.2 Radiation Safety

- c. Comply with proper procedure when terminating employment or the use of radioactive materials or radiation.

IV. Definitions

There are no defined terms used in this Policy.

V. Related References

[UT Health San Antonio Safety Handbooks](#)

VI. Review and Approval History

- A. The approving authority of this policy is the University Executive Committee.
- B. The review frequency cycle is set for three years following the last review date, a time period that is not mandated by regulatory, accreditation, or other authority.

Effective Date	Action Taken	Approved By	Date Approved
06/2000	Policy Origination		
09/2018	Policy Revision		
05/2021	Policy Revision, discretionary edits		