Policy Chapter:	**Chapter 15 Risk Management**
Policy Number and Title:	**15.010 Radiation Safety**

I. Policy Statement

The University of North Texas (UNT) is committed to the proper receipt, possession, use and transfer of sources of radiation and lasers by UNT faculty, staff and students through the establishment of responsibilities that meet or exceed standards prescribed by federal and state regulations.

II. Application of Policy

Total University

III. Policy Definitions

A. Laser

"Laser," in this policy, means a device that produces an intense, coherent, directional beam of light by stimulating electronic or molecular transitions to lower energy levels.

B. Principal Investigator

"Principal Investigator," in this policy, means an individual authorized in writing by the Radiation Safety Committee to obtain and use radioactive materials, radiation producing devices, or lasers for the purpose of research, education, or any other activities at UNT.

C. Radiation

"Radiation," in this policy, means an emission of energy as electromagnetic waves or particles, whether ionizing or non-ionizing, including x-rays, gamma rays, alpha and beta particles, high speed electrons, neutrons, protons, other nuclear particles, and microwaves, but not including laser light.

D. Executive Management

"Executive Management," in this policy, means an individual who is no more than two reporting levels below the President of the University.

E. Radioactive Material

"Radioactive Material," in this policy, means any solid, liquid, or gas that emits radiation spontaneously.

IV. Policy Responsibilities

A. Generally

Individuals possessing, receiving, using, storing, and transferring any radioactive materials must be entered into the approved UNT radioactive material license. All radiation producing device and lasers must be registered in a current certificate of x-ray registration and certificate of laser registration, as applicable, issued by the Texas Department of State Health

Services (TDSHS), unless a written exemption is granted by TDSHS. The possession, receipt, use, storage, transfer, and disposal of all radioactive materials, radiation-producing devices, and lasers for university- related purposes must comply with the Texas Radiation Control Act and regulations adopted by the Texas Department of State Health Services Radiation Program. All activity related specifically to the sources of radiation and lasers must be within the scope of the current Radioactive Material License, certificate of x-ray registration and certificated of laser registration as outlined per Texas Administrative Code Chapter 25 Part 289 (25 TAC ~ 289) and in accordance with any applicable local, sponsor, or university requirements. No radiation may be deliberately applied to human beings except by or under the supervision of an individual authorized by and licensed in accordance with Texas law to engage in the healing arts.

B. Radiation Safety Committee

The duties and responsibilities of the Radiation Safety Committee include but are not limited to the following:

1. reviewing all proposals for the use of radioactive materials, radiation- producing devices, and lasers;
2. suspending any unsafe or noncompliant uses of radioactive materials, radiation producing devices, and lasers; and investigating the cause of such use under the direction of the Radiation Safety Office;
3. reviewing the UNT Radiation Safety Manual and this policy annually in order to make recommendations for any necessary changes to the Senior Vice President for Finance and Administration and to the Vice President for Research & Innovation;
4. reviewing summaries of the following information presented by the Radiation Safety Officer (RSO):
    a. over-exposures;
    b. significant incidents, including spills, contamination, or medical events; and
    c. items of non-compliance following an inspection;
5. reviewing the program for maintaining doses as low as reasonably achievable (ALARA) and providing any necessary recommendations to ensure doses are ALARA;
6. reviewing the overall compliance status for principal investigators;
7. reviewing the audit of the radiation safety program and acting upon the findings;
8. developing criteria to evaluate training and experience of new principal investigators and authorized users applicants;
9. evaluating and approving principal investigator applicants who request authorization to use radioactive material at the facility;

10. evaluating new uses of radioactive material; and

11. reviewing and approving permitted program and procedural changes prior to implementation.

C. Radiation Safety Committee Membership

The UNT Senior Vice President for Finance and Administration, with concurrence of the Vice President for Research & Innovation shall appoint a Radiation Safety Committee (RSC) and designate one member as chair of the committee. The Chair shall vote only in theeventofatie. The RSC shall be composed of the Radiation Safety Officer (RSO), the Laser Safety Officer (LSO), a representative of executive management, and one or more persons trained or experienced in the safe use of radioactive materials. The experience and background of each member appointed shall be such that the RSC shall collectively possess the appropriate expertise to review the types of uses of radioactive materials, radiation producing devices, and lasers which will be reviewed by the committee. The term for each member shall be three years with staggered terms, and members shall be eligible for re-appointment. The RSC shall meet as needed, but no less than three (3) times each calendar year. An RSC member shall be disqualified from review of and voting on a proposed activity in which he/she expects to be involved or has a significant financial interest. A member who is disqualified for this reason may provide information to the RSC regarding the proposed activity.

D. Radiation Safety Officer

The Radiation Safety Officer (RSO) shall be appointed by the Senior Vice President for Finance and Administration with the concurrence of the Vice President for Research & Innovation. The Senior Vice President for Finance and Administration, with the concurrence of the Vice President for Research & Innovation, may appoint one individual to serve as RSO and another individual to serve as Laser Safety Officer (LSO), or they may appoint one individual to serve as both RSO and LSO. The RSO has authority to take control of and shut down research, projects, and operations in emergency situations or when unsafe conditions exists and to implement corrective actions. Additionally, the responsibilities of the RSO include, but are not limited to:

1. establishing and overseeing operating, safety, and emergency procedures, including the Radiation Safety Manual and ALARA procedures contained therein, and reviewing such procedures at least annually to ensure that the procedures are current and conform with the requirements of the Texas Administrative Code;

2. overseeing and approving all phases of the training program for operations and/or personnel so that appropriate and effective radiation protection practices are taught;

3. ensuring that required radiation surveys and leak tests areperformed and documented in accordance with the requirements of the Texas Administrative Code, including taking any corrective measures when levels of radiation exceed established limits;

4. ensuring individual monitoring devices are used properly by occupationally-exposed personnel, that records are kept of the monitoring results, and that timely notifications are made in accordance with the Texas Administrative Code;

5. investigating and reporting to the Texas Department of State Health Services Radiation Program each known or suspected case of radiation exposure to an individual or radiation level detected in excess of limits established by the Texas Administrative Code and each theft of loss of source(s) of radiation, to determine the cause(s), and to take steps to prevent recurrence;

6. investigating and reporting to the Texas Department of State Health Services Radiation Program each known or suspected case of release of radioactive material to the environment in excess of limits established by the Texas Administrative Code;

7. having a thorough knowledge of all relevant UNT management policies and administrative procedures;

8. ensuring records are maintained as required by the Texas Administrative Code;

9. ensuring the proper storing, labeling, transport, use and disposal of sources of radiation storage and transport containers;

10. ensuring inventories are performed in accordance with the activities for which a radiation license application is submitted;

11. ensuring compliance with requirements of the Texas Administrative Code, conditions of the UNT radiation license, and relevant UNT operating, safety, and emergency procedures;

12. serving as the primary contact with the Texas Department of State Health Services Radiation Program and any other external regulatory agencies; and

13. serving as a voting member of the RSC.

E. Laser Safety Officer

The Laser Safety Officer (LSO) shall be appointed by the Senior Vice President for Finance and Administration, with the concurrence of the Vice President for Research & Innovation. The Senior Vice President for Finance and Administration, with the concurrence of the Vice President for Research & Innovation, may appoint one individual to serve as Radiation Safety Officer (RSO) and another individual to serve as LSO, or he or she may appoint one individual to serve as both RSO and LSO. The LSO has authority to take control of and shut down research, projects and operations in emergency situations or when unsafe conditions exists and to implement corrective actions. The Laser Safety program addresses issues related to the use of Laser Safety Classes III.b and IV for purposes of education and research. Additionally, the responsibilities of the LSO include, but are not limited to:

1. establishing and overseeing operating, safety, and emergency procedures, including the Laser Safety Manual, and reviewing such procedures at least annually to ensure that the procedures are current and conform with the requirements of the Texas Administrative Code;
2. ensuring that users of lasers are trained in laser safety, as applicable for the class and type of lasers the individual uses;
3. specifying whether any changes in control measures are required:
    a. following any service and maintenance of lasers that may affect the output power or operating characteristics; or
    b. whenever deliberate modifications are made that could change the laser class and affect the output power or operating characteristics.
1. ensuring maintenance and other practices required for safe operation of the laser(s) is performed;
2. ensuring the proper use of protective eyewear and other safety measures;
3. ensuring compliance with the requirements of the Texas Administrative Code and with any applicable UNT engineering or operational controls;
4. serving as the primary contact with the Texas Department of Health Bureau of Radiation Control and any other external regulatory agencies; and
5. serving as a voting member of the RSC.

F. Principal Investigator

The responsibilities of the Principal Investigator shall include the following:

1. instructing and training laboratory staff in the practices and techniques required to assure proper safety and emergency response procedures, including informing the laboratory staff of the reasons for the use of any radiation protection devices and familiarizing his or her staff with the symptoms of radiation exposure;
2. supervising the laboratory staff's safety performance to assure that the required radiation safety practices and techniques are continuously employed;
3. selecting and providing personal radiation protection equipment to all laboratory staff members based on the radiation risk presented and the procedures used in the laboratory;
4. maintaining written documentation for all training activities, including instruction in radiation safety procedures, for all laboratory staff personnel;

5. investigating and immediately reporting to the RSO; the RSO will report in writing to the RSC, the Office of Research Integrity & Compliance and to the Risk Management Services Department any significant problems or incidents relating to the use of radioactive materials, radiation producing devices, or lasers;

6. complying with all applicable regulatory and UNT requirements and with the specifications of the sponsor of the approved research, educational, or other activity; and

7. informing all female individuals involved with or observing activity involving radiation, in writing, of their right to declare pregnancy and the dangers radiation poses to an embryo/fetus.

G. Approval of Uses of Radioactive Materials, Radiation-Producing Devices, and Lasers

1. The Principal Investigator must apply to the Radiation Safety Committee (RSC) before entering into research or education programs using radioactive materials, radiation-producing devices and lasers. All proposed research, educational, or other activity using radioactive materials, radiation producing devices, or lasers at UNT must be approved by the RSO and if deemed necessary to the RSC prior to acquisition of the materials/devices or initiation of the activity.

2. Application forms for approval of these activities are available on the Risk Management Services webpage. Upon receipt of an application for the use of radioactive materials, radiation-producing devices, or lasers, the RSC, at its discretion, may conduct a detailed review of the proposed research, educational, or other activity, including the Principal Investigator's experience, qualifications, research procedures, laboratory facilities, and equipment. Such review may include a personal interview with the Principal Investigator and an inspection of the proposed laboratory facilities.

H. Use of Animals, Biohazards or Human Subjects

In addition to obtaining RSC approval for activities involving radiation, radiation-producing devices and lasers, any such research, educational or other activity that uses animals, human subjects, biohazardous agents, potentially hazardous human materials, or recombinant DNA molecules at UNT requires approval from the Office of Research Integrity & Compliance and approval from the following UNT committee or committees as appropriate:

1. Animals – Institutional Animal Care and Use Committee (IACUC).

2. Biohazards – Institutional Biosafety Committee (IBC).

3. Human Subjects – Institutional Review Board (IRB).

Review of proposed research, educational, or other activities by the above committees may run parallel with review by the RSC.

I. Termination or Suspension of Research, Educational or Other Activity

A Principal Investigator who willfully or negligently violates any applicable regulatory, sponsor, or UNT policies and guidelines governing the use of radioactive materials, radiation-producing devices, or lasers may have their Authorization to Use suspended by the RSC, pending further investigation, and final action by the RSC. In the event the RSC's final action includes revocation of approval for the use of radioactive materials, radiation-producing devices, or lasers, the RSC is authorized to notify any sponsoring agency or entity of such action. Any termination or suspension of Research, in cases other than immediate life safety, will require the approval of the Vice President for Research & Innovation. Any terminations or suspensions involving an immediate life safety condition will be referred to the Vice President for Research & Innovation for possible follow-on actions.

J. RSO and the Radiation Safety Committee Recordkeeping

The RSO and the Radiation Safety Committee (RSC) shall maintain records containing the following information:

1. a copy of each application describing the proposed research project, educational or other activity;
2. a copy of the minutes of each RSC meeting, including deliberations and actions on new projects submitted for review and deliberations and actions on renewal, modification or termination of projects previously approved; and
3. copies of all licenses, reports and correspondence with any external regulatory agencies.

K. Disposal of Radioactive Material

The disposal of radioactive material is strictly controlled by laws and regulations of the State of Texas. To assure compliance with these laws and regulations, any plan for disposal of radioactive material must be approved in advance by the Radiation Safety Officer.

L. Procedure for Reporting Violations

Suspected violation of this policy may be reported to:

1. the UNT Radiation Safety Officer or the Laser Safety Officer at the telephone number or e-mail address indicated on the Risk Management Services website; or
2. the UNT Office of Research Integrity & Compliance; or
3. the UNT Compliance Office at https://compliance.unt.edu/staff
4. All such reports will be referred to the Radiation Safety Committee for review. If warranted, the RSC may conduct investigate suspected violations to determine if corrective action is necessary.

V. References and Cross-References

10 C.F.R., Chapter 1, Nuclear Regulatory Commission Regulations
10 C.F.R., Part 150, Exemptions and Continued Regulatory Authority in Agreement States and in Offshore Waters Under Section 274
American National Standard for Safe Use of Lasers, American National Standards Institute Standards Z136.1 (1993)
Texas Administrative Code, Ch. 289
Texas Administrative Code §§ 289.202(b)(1) & 289.202(m)
Texas Health and Safety Code, Chapter 401, Nuclear and Radioactive Materials
UNT Radioactive Material License No. L00101, UNT Certificate of Registration No. R04611, and UNT Certificate of Laser Registration No. Z01129, Bureau of Radiation Control, Texas Department of Health

VI. Revision History

Policy Contact:	Executive Director, Risk Management Services
Approved Date:	02/23/1990
Effective Date:	02/23/1990
Revisions:	01/01/2005, 04/29/2011, 07/28/2011, 04/19/2021