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RADIATION SAFETY MANUAL  
GEORGIA INSTITUTE OF TECHNOLOGY

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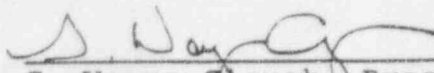
NUCLEAR REGULATORY COMMISSION  
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## INTRODUCTION

The rules and regulations that govern the use of radiation and radioactive material on the Georgia Tech campus are contained in that State of Georgia Rules and Regulations on Radioactive Material, Chapters 290-5-22 and 391-3-17. The rules and regulations governing the research reactor and radioactive materials relating to the research reactor are contained in Title 10 Code of Federal Regulations, Parts 19 and 20.

This Radiation Safety Manual is written for the purpose of administering the above rules and regulations at Georgia Tech by clearly specifying the requirements which shall be adhered to by researchers. Further, this Manual defines the level of compliance required of individuals who wish to utilize radiation or radioactive materials in their research and teaching programs at Georgia Tech.

The requirements of this Radiation Safety Manual have the authorization of the President of Georgia Tech. Knowledge of and adherence to these procedures is the responsibility of every individual who utilizes radioactive materials, radiation producing devices, or works with the Georgia Tech Research Reactor. All users shall cooperate with the Director, Neely Nuclear Research Center, and the Manager, Office of Radiation Safety, who have administrative responsibility for nuclear research and radiation safety issues on the Georgia Tech campus.

  
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G. Wayne Clough, President  
Georgia Institute of Technology

Date 4/24/76

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## I. NUCLEAR SAFEGUARDS COMMITTEE

A Nuclear Safeguards Committee shall be established by the President of Georgia Tech which shall be responsible for maintaining the health and safety standards associated with the use of radioactive materials on the Georgia Tech campus (regulated by the State of Georgia) and the operation of the Georgia Tech Research Reactor (GTRR) (regulated by the U.S. Nuclear Regulatory Commission).

### A. Membership

The Nuclear Safeguards Committee shall be composed of senior technical personnel who provide experience in radiological safety, radiation protection, reactor engineering, reactor operations, chemistry and radiochemistry, instrumentation-control systems, and mechanical and electrical systems.

### B. Responsibilities

1. The Committee shall meet quarterly at a minimum.
2. The Committee shall review and approve proposed experiments and tests utilizing radioactive material, the reactor facility, the hot cell facility, and all other types of ionizing radiation on the Georgia Tech campus.
3. The Committee shall review and approve proposed operating procedures and health physics procedures for the GTRR and the Georgia Tech campus. It shall also review and approve revisions to already existing procedures. Minor modifications to procedures which do not change the original intent of the procedure may be approved by the Director, Neely Nuclear Research Center (NNRC), or his designee.
4. The Committee shall review reportable occurrences.
5. The Committee shall review and approve proposed changes to the GTRR made pursuant to 10 CFR 50.59(c), and the regulations of the State of

Georgia as contained in Chapters 290-5-22 and 391-3-17 of the State Rules and Regulations.

6. The Committee shall audit reactor operations for adequacy and reactor operational records for compliance with internal rules, procedures, regulations, license conditions and Technical Specifications on an annual basis.
7. For the GTRR the committee shall audit plant equipment performance with particular attention to operating anomalies, reportable occurrences, and the steps taken to identify and correct their causes on an annual basis.
8. Minutes of the Committee meetings, including any recommendations or occurrences, shall be recorded and distributed to all committee members and the President's Office. Committee minutes will also be filed in the NNRC office.
9. The Committee shall review and approve all applications for the use of ionizing radiation on the Georgia Tech campus including radioactive materials and radiation generating devices.
10. The committee may delegate authority to the Chairperson or a Subcommittee to act in its behalf between normal meeting dates in certain matters. In such a case, at the next meeting of the Committee, the full membership shall be informed of any such action that has taken place (e. g., authorization for a new PI to use radioactive materials).
11. Appointments of members to the Committee shall be for three years.

## II. DIRECTOR, NEELY NUCLEAR RESEARCH CENTER

### A. Appointment

The Director, NNRC, is appointed by the President of Georgia Tech and reports directly to the Dean of Engineering. (T.S. Amendment, No. 11, 1995)

### B. Responsibilities

1. It is the Director's responsibility to provide direction for the radiation safety program at Georgia Tech and for operation of the Georgia Tech Neely Nuclear Research Center.
2. The Director shall safeguard the general public and Georgia Tech personnel from radiation exposure.
3. The Director shall provide the Committee with information necessary for its functioning of the Committee in a timely manner.

### C. Authority

The Director, NNRC, has the authority and responsibility to interrupt/suspend any experiment involving the use of radiation if the methods and/or procedures used in such experiments are determined to be unsafe and/or contrary to applicable regulations. The interruption/suspension shall remain in effect until resolved by the Nuclear Safeguards Committee.

### III. MANAGER, OFFICE OF RADIATION SAFETY

#### A. Appointment

The Manager, Office of Radiation Safety (MORS), is appointed by the Director, NNRC. The MORS is qualified to advise others on safety matters pertaining to ionizing radiation due to his/her level of education, training and experience. The MORS shall supervise and administer the radiation protection program on the Georgia Tech campus (Appendix A).

#### B. Responsibilities

1. The MORS shall act in a supervisory/administrative capacity in all aspects of the Institute's radiation measurement and radiation protection activities including personnel monitoring, maintenance of exposure records, survey methods, waste disposal, decontamination, radiological safety practices, etc.
2. The MORS shall review and recommend all activities and procedures which involve actual or potential exposure of personnel to radiation or the release of radioactive materials to the environment.
3. The MORS shall be available to consult with all users of ionizing radiation so as to provide advice in radiological safety matters.
4. The MORS shall maintain an inventory of all radionuclides (sources) and ionizing radiation producing machines on the Georgia Tech campus.
5. The MORS shall implement a radiation survey program for the Georgia Tech campus and the NNRC as deemed appropriate in the interest of radiation safety. Appropriateness in this instance shall be based on adherence to and compliance with regulatory requirements.
6. The MORS shall maintain records of radiation surveys and exposures of personnel to ionizing radiation as may be required to demonstrate compliance with state and federal regulations and other industry good practices.



7. The MORS shall obtain, issue, collect and record the results of all personal monitoring devices deemed necessary to determine significant (>10% of permissible exposure limits) personnel exposure to radiation.
8. The MORS shall assist principal investigators in the training of users of radionuclides and ionizing radiation producing machines. The MORS shall provide an introduction to general radiation safety in the laboratory while the principal investigator shall provide specific on-the-job training for each employee/student working under their direction.
9. The MORS shall report to the Director, NNRC, any radiation hazards, serious infractions of rules, or other radiological incidents.

C. Authority

The MORS has the authority and responsibility to interrupt or suspend any activity which involves the use of radiation if the methods and/or procedures used in such experiments in his/her professional opinion are deemed to be unsafe and/or contrary to regulations. Such interruption/suspension shall remain in effect until resolved by the Nuclear Safeguards Committee.

#### IV. PRINCIPAL INVESTIGATOR

##### A. Definition

A Principal Investigator (PI) is a Georgia Tech faculty or staff person who obtains written authorization from the MORS, the Director, NNRC, and the Nuclear Safeguards Committee to use radioactive material and/or radiation producing devices in research and educational activities at Georgia Tech.

##### B. Responsibilities

1. The PI is responsible for using radioactive materials in accordance with written procedures which conform to State and Federal rules and regulations, the requirements specified in this Manual and the PI Authorization Form A available from the Office of Radiation Safety.
2. The PI is responsible for ensuring that students and assistants/technicians under his/her supervision adhere to procedures, rules and regulations, the requirements of this Manual and the requirements of the PI authorization form.
3. The PI is responsible for providing specific laboratory training for those individuals working under his/her direct supervision to ensure the worker's personal safety and to preclude the spread of radioactive contamination.
4. The PI shall maintain up-to-date inventory of the radioactive materials for which he/she is responsible.
5. The PI is responsible for preparation and holding of radioactive waste material designated for disposal. While in the laboratory, radioactive waste material shall be stored in appropriate containers as evaluated on a case by case basis by the Office of Radiation Safety. The PI is also responsible for providing the appropriate paperwork regarding radioactive waste material to the Office of Radiation Safety at the time of waste pickup.

6. The PI is responsible for posting appropriate radiation signs and labeling containers of radioactive material with the standard radiation warning symbol in their laboratory area where the material is used.
7. The PI shall post in the laboratory area, directions for notification of responsible parties should an off normal situation arise. Where applicable, the PI (or other individual) should contact the Office of Radiation Safety for assistance.

C. Acquisition of PI Status

Members of the Georgia Tech faculty and staff are eligible to apply for PI status. Instructions for application are contained in NNRC Procedures 9501 and 9502, along with the method and conditions of approval. Procedure 9501 also delineates the responsibilities of the PI in detail. Procedures and requisite forms are available from the Office of Radiation Safety.

D. Procurement of Radioactive Materials and/or Radiation Producing Equipment

The method of radioactive materials or radiation generating equipment acquisition is described in Procedures 9501 and 9502. The Purchasing Department at Georgia Tech will not process requisitions for radioactive materials without an accompanying FORM C.

All radioactive material is received by the ORS for an initial survey to ensure that leakage did not occur during transportation and that the new radioactive material is added to the inventory data bank.