

## LABORATORY SAFETY POLICY

### I. Policy Statement

Rice University is committed to creating and maintaining a safe laboratory environment for faculty, students, staff and visitors. Each individual involved with laboratories has a role to play in creating and maintaining a strong culture of safety. To this end, the University has created a laboratory safety policy, the goal of which is to enhance laboratory safety in order to minimize the risk of death, injury, illness or property damage in the laboratory environment.

To accomplish this goal, the University will endeavor to provide the facilities, equipment, training and support necessary to maintain safe laboratories and will strive for regular improvements in its programs.

This policy pertains to laboratory safety, where “laboratory” is considered a discrete space where research, scholarly or educational activities take place using materials or equipment that can potentially pose a health or safety hazard (e.g., hazardous chemicals; lasers; compressed gases; liquid cryogenics; high powered electronic or mechanical tools; high pressure devices, among others).

### II. Roles and Responsibilities

Faculty, students, staff and visiting scholars. Faculty, students, staff and visiting scholars have various responsibilities to assure their own safety and the safety of others. They also must comply with federal, state, local and University regulations and are responsible for successfully completing required training and adhering to safe practices while working or doing research in laboratories. They must use the required work practices, personal protective equipment and engineering controls to reduce worker exposure, to chemical, physical and biological agents. Additionally, they are responsible for properly using university-supplied materials and equipment and for exercising good judgment in safely carrying out their work by following established procedures. Each individual working in a research group will be engaged in creating and maintaining a culture that values safety.

Principal Investigator (PI). The PI is a faculty member in either the professorial or research ranks overseeing a research laboratory and has the primary responsibility for maintaining a safe laboratory environment. The PI will ensure each laboratory he/she is responsible for has an individual identified as the contact person in case of emergencies and that current contact information for that person is posted on the door in clear view for first responders. The contact person must be knowledgeable about the research and hazards present in the laboratory.

The PI will act to insure faculty, students, staff and visiting scholars receive the appropriate training, instruction and mentorship necessary to work safely in his/her laboratory. In addition, the PI is responsible for assuring that suitable equipment and supplies are in place so that research can be conducted safely. Moreover, the PI is responsible for taking the actions necessary for his/her laboratory to comply with Rice policies as well as with all federal, state and local regulations.

The PI, will review the training programs available to people under his/her supervision in order to conclude that they adequately address the hazards posed by the specific materials and equipment in his/her laboratory. The PI will foster a culture of safety in his/her laboratory group.

Department Chairs. Department chairs will facilitate building a culture of laboratory safety in their department and will provide individuals under their management with the appropriate authority and support to implement environmental health and safety programs. Department chairs will take steps to

ensure that PIs within the department fulfill their administrative safety obligations. The department chairs will also actively participate in the laboratory safety resolution process to ensure issues are satisfactorily resolved in a timely manner.

Department chairs will verify that a PI has been assigned safety responsibility for each research laboratory and laboratory related space allocated to the department. Department chairs will also make clear assignments of safety responsibility for shared spaces and equipment used by personnel from more than one laboratory group. When a PI can no longer fulfill the safety responsibilities associated with a laboratory, the department chair will promptly assign those responsibilities to another PI.

When laboratory space and equipment are shared among more than one department, the chairs of the participating departments will confer to assign safety responsibility. If the department chairs cannot agree on the individual, the relevant dean(s) and vice provost for research will select the responsible individual.

Department chairs will collaborate with the PI and the Environmental Health & Safety (EH&S) staff to facilitate timely resolutions to actual or potential unsafe conditions when such conditions are reported. If a reportable safety incident occurs in a laboratory space allocated to the department, the department chair will require that the PI implement safeguards immediately and follow up to be sure the issues are resolved. Department chairs will also work with the deans and contribute resources and support needed to resolve safety issues should PIs, by themselves, be deficient in complying with safety requirements.

Shared Equipment Authority. The Vice Provost for Research, or his/her designee, will ensure an individual is assigned safety responsibility for space and equipment assigned to the Shared Equipment Authority (SEA). The Office of Research representative and the relevant department chair will confer on the assignment of safety responsibility when equipment is located in departmental space.

Deans. Deans will work with departments and the vice provost for research to provide appropriate facilities, infrastructure and resources to support the safe conduct of research within their school/division. Deans will participate in the laboratory safety problem resolution process to ensure outstanding issues are resolved in a timely manner.

Provost or his/her designee. The Provost, or his/her designee, will review recommendations related to Rice's laboratory safety policy and set laboratory safety policy priorities. He/she will also work with the vice provost for research, EH&S, deans, department chairs and PIs to resolve key outstanding safety matters as required and provide leadership in advocating a culture of safety.

Safety Committee(s). Rice will maintain safety committees to review and monitor the use of recombinant DNA (rDNA), and other regulated materials proposed for use in PI laboratories or shared laboratory spaces. The safety committee(s) report to the vice provost for research and will work with EH&S to review and refine procedures associated with this policy; verify that checklists and templates are useful and appropriate; ensure interactions with faculty are constructive and enhance compliance with this policy; and confirm that safety issues arising through new facility construction and building remodeling as well as through changing federal, state and local safety guidelines and requirements are addressed.

Environmental Health & Safety (EH&S). Rice EH&S will assist the deans, department chairs and PIs with the implementation of this policy. EH&S will establish and monitor safety practices and training programs and review mechanisms that support safe laboratory practices. EH&S will support the PIs in the preparation of training materials and safety plans. EH&S will review and approve laboratory specific safety plans as part of the annual laboratory inspection process.

EH&S is responsible for reviewing federal, state and local laws and regulations pertaining to laboratory safety and for notifying the PI of these regulatory changes and recommending appropriate policy and procedural changes to comply with the regulations.

EH&S will provide guidance and technical assistance to deans, department chairs and PIs in identifying, evaluating and correcting health and safety hazards. On an ongoing basis EH&S will develop programs for the safe use of hazardous radiological, biological and chemical substances and radiation-producing devices. EH&S will also oversee and manage hazardous waste disposal services.

### **III. Safety Plan (OSHA Chemical Hygiene Plan)**

Every PI or designated laboratory representative must develop a laboratory-specific safety plan consistent with the guidelines issued by the Occupational Safety and Health Administration (OSHA) and EH&S for his/her laboratory. A current plan outlining individuals responsible for training, ordering and laboratory management must be available and accessible to laboratory personnel at all times. (Safety Plan templates and examples prepared by other PIs are available from EH&S.)

Given the unique nature of hazards and safety risks in individual laboratories, PIs are responsible for ensuring that their laboratory-specific safety plan includes:

- a. a clear definition of what constitutes a safety incident in their laboratory;
- b. procedures for incident reporting and response to ensure safe handling and clean ups;
- c. a process to investigate factors contributing to a reportable safety incident.

For the purpose of this policy, a “reportable safety incident” is any unplanned and unwanted incident that occurred during the performance of a lab-related activity and that resulted in or could have led to injury, illness or material damage to property.

### **IV. Ensuring a Safe Work Environment**

The PI or a designated laboratory representative shall conduct laboratory self-inspections using an EH&S checklist at least once a year. The purpose of these inspections is to identify, evaluate and remedy potential hazards and unsafe laboratory practices. These self-inspections are also required whenever new substances, processes, procedures or equipment are introduced into the laboratory that might present new health and safety hazards. These inspections must be documented and records must be available for review upon request.

In addition, EH&S will plan to conduct independent inspections of all laboratory space at least once every 12 months to identify, evaluate and remedy potential hazards and unsafe laboratory practices, unless EH&S’s risk assessment concludes that the inspection of a particular space should be on a different timetable. The PI, in coordination with EH&S, will remedy any deficiencies identified during the inspection in a timely manner. If the deficiencies are not corrected in the time frame defined in the inspection report, then the chair will be notified, followed by notifications to the dean or provost as necessary.

Rice University faculty, staff, and students have responsibility to work safely when performing duties in the laboratory and to encourages others to work safely. This includes a responsibility to report to their PI, supervisor or the EH&S any accidents, near-miss situations or unsafe conditions or environmental health hazard within their lab of which they are aware.

Employees and students will not be disciplined, retaliated against or discriminated against for reporting in good faith health and safety hazards not of their own doing to Rice or to appropriate governmental

agencies. Additionally, it is considered a serious infraction of this safety policy intentionally to cover up or withhold information on a safety matter that may lead to serious injury, illness or property damage.

## **V. Safety Problem Resolution Process**

The Director of EH&S or his/her designee has the authority to curtail or stop any activity that EH&S considers an immediate or serious danger to health or safety in their professional judgment. In the event of such curtailment or interruption, the PI and department chair will be immediately notified. If reasonable, effective and prompt action is not taken to remedy the condition satisfactorily, the curtailment or shutdown will continue, and the dean and provost will be notified of the action. The curtailment or interruption will continue until all parties agree on and implement a reasonable solution.

EH&S will provide the provost (or designee), vice provost for research, deans and department chairs a summary of significant outstanding safety issues semi-annually. Department chairs will work with PIs to address and correct issues that are identified as significant, involving deans and administrative officials as necessary until a resolution can be agreed upon by all parties.

In the event that the parties cannot agree on a solution or resolution, the Provost has the authority to make a final decision after consulting with EH&S.

Safety issues that are not adequately resolved may result in the shutdown of the laboratory, restrictions on the spending of research funds, and/or suspension of the right to have grant proposals submitted on their behalf.

## **VI. Training**

All PIs, students, laboratory staff and visiting scholars performing research in the laboratory must take general laboratory safety training and laboratory specific training (such as biohazards, chemical and/or radiation training) offered by EH&S at least once a year.

All undergraduate students who will be taking courses that include a laboratory component will receive safety training from their instructor or EH&S staff before they begin their laboratory activities.

Depending on the nature of the research and the hazards present in the laboratory, additional laboratory-specific training must be provided by the PI (or designee). This training must include special handling and documentation procedures for each type of hazard present, specific operating procedures for laboratory equipment and experiments, personal protective equipment required for the work area and emergency procedures. Successful completion of training must be documented by the PI (or designee) before individuals start working or performing research in the laboratory and again any time new hazards or procedures are introduced that impact laboratory safety.

## **VII. Personal Protective Equipment**

All faculty, students, staff and visiting scholars shall adhere to a standard laboratory dress code and use personal protective equipment (PPE) when working in potentially hazardous situations or around potentially hazardous materials and/or equipment. Appropriate PPE will comply with recommendations of the Occupational Safety and Health Administration and National Institutes of Health guidelines and as defined by the EH&S in consultation with the PI.

## **VIII. Minors in Laboratories**

PIs and other researchers must comply with the Rice University Policy 811, Minors on Campus, as well as the guidelines for minors in the laboratory posted on the Environmental Health and Safety website. Minors under the age of 14 are not permitted access to any research laboratory where hazards are present.

Regardless of status (student, volunteer, visitor or paid), minors ages 15-18 are restricted from working or conducting research with the following materials:

- BSL-2 agents
- Human, nonhuman primate, or other mammalian cells and tissues
- Select agents and toxins
- Animal research with ABSL-2 agents
- Explosives
- Chemical hazards (acute hazards)
- Radiation materials or laser devices without RSO approval

Tours involving minors that include laboratory facilities must be coordinated in advance with EH&S.

#### **IX. Research Involving Select Agents, Hazardous and Toxic Materials**

Any application for proposed sponsored research involving any select agents and toxins (such as Shiga toxin and tetrodotoxin) must be submitted to, and approved in writing by, the department chair, dean and EH&S director before that application is submitted to a potential sponsor. The PI is responsible for applying for the use of any such materials and for complying with the rules of the U.S. Department of Health and Human Service.

The purchase, use, handling and disposal of all hazardous and toxic materials must comply with all provisions and rules of all appropriate regulatory agencies, including the Texas Commission on Environmental Quality, the Environmental Protection Agency, the Occupational Safety and Health Administration and the City of Houston Fire Department rules and guidelines. Rules and guidelines cover, but are not limited to, the handling, ordering, allowable quantity, container size, container labeling, exposure to, recordkeeping and disposal of the material in a laboratory or containment area.

#### **X. Research Involving Controlled Substances**

Controlled substances are any drugs or chemical substances whose possession and use are regulated under the United States Controlled Substances Act. Management and possession criteria differ depending on the controlled substances "schedule". All controlled substances must be purchased in accordance with the [Rice Purchasing Policy](#), and possession and management of the substance(s) must follow the guidelines published on the websites of the U.S. Department of Justice Office of Diversion Control and Environmental Health and Safety. Researchers using these materials must possess a license for the scheduled material, adhere to required safeguards for storing and using such materials securely and maintain records on their use and disposal.

#### **XI. Precursor Chemicals and Equipment**

The Texas Department of Public Safety (DPS) and the Texas Higher Education Coordinating Board (THECB) have a memorandum of understanding (MOU) establishing the responsibilities of the DPS, the THECB and institutions of higher education for the purchase, use, possession and disposal of precursor chemicals and equipment. Precursor chemicals are those used in the manufacturing of illegal drugs. The purpose of the memorandum is to implement and maintain a program for reporting information concerning controlled substances, controlled substance analogues, chemical precursors and chemical laboratory apparatus used in education or research activities of institutions of higher education. The PI is responsible for ensuring that these materials are used only for their intended research purposes and adhering to required safeguards for storing and using such materials securely, as well as for reporting any misuse, theft or loss of chemicals, equipment or glassware to EH&S.

## **XII. Lasers, X-Rays and Radioactive Materials**

The procedures for the purchase, use and disposal of lasers, X-rays and radioactive materials are outlined in the Texas Department of State Health Services' [Radiation Control Program](#) guidelines. All use of these materials and equipment must comply with current rules, regulations, licensing and registration requirements. Radiation safety information and procedures can be found in the Radiation Safety section of the EH&S website. Prior approval to purchase or use these materials and devices must be obtained from EH&S.

## **XIII. Research and other Activities Involving Drawing Human Blood**

Research and educational classes conducted by faculty, students, staff and visiting scholars involving human blood draws must have prior approval by the Institutional Review Board (IRB) for the Protection of Human Subjects, and must follow the "[Guidance on Collections of Human Blood for Research](#)" available on the EH&S website.

## **XIV. Research Involving Animals, Humans, or Recombinant DNA**

Research involving animals must be done in accordance with University Policy 314, Care and Humane Treatment of Animals Used in Research, Testing, and Education, and is subject to the approval, restrictions, and procedures of the Institutional Animal Care and Use Committee (IACUC).

Research involving human subjects must be done in accordance with University Policy 326, Human Health and Safety in the Performance of Research, and is subject to the approval, restrictions, and procedures of the Institutional Review Board (IRB).

Research involving recombinant DNA (rDNA) molecules must be done in accordance with University Policy 301, Management and Administration of Sponsored Projects, and is subject to the approval, restrictions, and procedures of the Institutional Biosafety Committee (IBC).

## **XV. Procedures**

Additional laboratory safety information and procedures can be found in the General Laboratory Safety section of the EH&S website. The Vice Provost for Research, EH&S and the Safety Committee may update these materials as necessary.

## **XVI. Additional Resources**

[29 CFR 1910.1200, OSHA Hazard Communication Standard; Subpart Z](#)

[29 CFR 1910.1450, Occupational Exposure to Hazardous Chemicals in the Laboratory](#)

[The Texas Health and Safety Code, Section 481.0621 \(b\)](#)

[MOU between the Texas Department of Public Safety and the Texas Higher Ed Coordinating Board](#)

[National Institutes of Health Center of Disease Control BMBL](#)

## **XVII. Responsible Officer**

Vice Provost for Research

## **XVIII. Related Policies**

Policy 301, Management and Administration of Sponsored Projects

Policy 314, Care and Humane Treatment of Animals Used in Research, Testing, and Education  
Policy 326, Human Health and Safety in the Performance of Research  
Policy 805, Environmental, Health and Occupational Safety Program  
Policy 811, Minors on Campus

*Signed David W. Leebron* \_\_\_\_\_

President

Policy History

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