



## GENERAL LABORATORY SAFETY

**Policy Title:** General Laboratory Safety

**Policy Type:** Administrative

**Policy Number:** 42-22 (2014)

**Responsible Office:** Environmental Health, Safety and Risk Management

**Approved:** 12/16/2021

**Responsible Executive:** Vice President for Finance and Administration

**Applies to:** Faculty, Staff, Students and Visitors

### POLICY STATEMENT

The objective of this policy is the elimination or minimization of chemical and physical hazards in laboratory environments. The use of chemicals in laboratories at Norfolk State University shall be planned and performed utilizing protocols that reduce exposures to employees, students and visitors. The scope of this policy applies to all Cleanrooms, academic and research laboratories.

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### DEFINITIONS

**EHS&RM** – The Environmental Health, Safety and Risk Management Office

### CONTACT(S)

Environmental Health, Safety and Risk Management (EHS&RM) officially interprets this policy. The Vice President for Finance and Administration is responsible for obtaining approval for any revisions as required by BOV Policy # 01 (2014) *Creating and Maintaining Policies* <https://www.nsu.edu/policy/bov-01.aspx> through the appropriate governance structures. Questions regarding this policy should be directed to Environmental Health, Safety and Risk Management.

### STAKEHOLDER(S)

Faculty, Laboratory Staff and Students



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### **POLICY CONTENTS**

#### **Responsibilities**

#### **Environmental Health, Safety and Risk Management Environmental Health, Safety and Risk Management (EHS & RM)**

The Environmental Health, Safety and Risk Management unit is responsible for the following:

- Implement safe work protocols for chemical and physical hazards.
- Assist principal investigator(s), faculty, staff or students in the selection of laboratory practices, administrative procedures and personal protective equipment.
- Provide technical guidance to personnel at all levels of responsibility on matters pertaining to laboratory safety.
- Provide for periodic testing of laboratory exhaust hoods.
- Inspect safety equipment (eyewashes, fire alarms and extinguisher, showers, smoke detectors, sprinklers, etc.
- Verify chemical storage, use, and disposal procedures
- Monitor compliance with applicable occupational safety and environmental health regulations and state fire protection codes.
- Ensure training and competency of faculty, staff and students
- Provide waste handling and disposal compliant with state and local regulations.
- Periodic inspection of laboratory cleanliness, equipment operation, housekeeping and chemical inventory.
- Investigate all reported incidents that had the potential or did result in exposure, injury, near miss or hazardous material release. Recommend corrective action to minimize potential incident recurrence and comply with all regulatory requirements.

#### **Department chairpersons**

- Department chairs are primarily responsible for safe management of laboratories in their respective departments, including compliance with all applicable regulatory requirements. He/She shall require that all laboratories in his/her charge be managed safely. Other departmental faculty or staff members may be delegated by the chair to oversee these activities.
- Department chairs shall ensure that no experiment that subjects personnel to excessive risk is permitted, no matter how valuable the results.

#### **Faculty (principal investigator), instructor**

- Acquire the certifications, knowledge and information needed to recognize and control hazards in the laboratory.
- Ensure fulfillment of lab-specific sections of the Chemical Hygiene Plan, including Standard Operating Procedures for extremely hazardous substances. Review documents and protocols annually adding updates as required.
- Train personnel and ensure access to the Chemical Hygiene Plan.
- Provide hazard specific training to employees for whom the investigator is responsible, focusing on safety hazards unique to lab procedures not included in the scope of basic



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laboratory training. Special emphasis shall be made for extremely hazardous substances, which require SOP's detailing laboratory protocols, engineering controls, personal protective equipment and emergency response procedures.

- Ensure an inventory of hazardous chemicals or materials present in the lab is maintained.
- Safety Data Sheets for all hazardous chemicals or materials present in laboratories shall be maintained reviewed for updates and made accessible to all lab personnel at all times.
- Evaluate safety and health hazards connected with proposed experimental procedures, select and employ laboratory practices, engineering controls and personal protective equipment that reduces potential exposures to hazardous chemicals or materials to the lowest feasible concentrations.
- Plan for containing and managing releases – airborne, liquid or solid – in the event of emergency.
- Regularly supervise and assess the safety performance of staff.
- Ensure safety of lab personnel and emergency responders by apprising EHS&RM of protocols required to respond to incidents involving, injuries, explosion, fire, or overexposure.
- Assist EHS&RM personnel with investigating and reporting incidents.

### **Laboratory personnel**

- In addition to EHS&RM personnel, Laboratory Managers are assigned to the McDemmond Center for Academic Research, Robinson Technology Building, the Biology and Chemistry labs in Wood Science Building, and the Nursing General Education Building. Each of these managers complete periodic inspections, monthly inventories, and provide training and assistance to faculty and students.
- Shall be constantly aware of his/her safety responsibilities.
- Shall participate in required training activities.
- Know and comply with safety guidelines, regulations and procedures required for assigned tasks.
- Plan and execute laboratory operations to minimize hazards to themselves or others including visitors.
- Report unsafe conditions to the principal investigator, immediate supervisor or EHS&RM.
- Report all facts pertaining to every accident, incident or near miss that may have or did result in injury exposure or uncontained release of chemicals. The primary purpose of incident investigation is prevention – not assignment of blame or culpability.

### **Laboratory Safety General Rules**

Safety should be thought about, acted upon, and encouraged at all times. Laboratory safety should become a habit for all workers. Every laboratory worker shall observe the following rules.

### **PREVENTIVE MEASURES**

Learn safety rules and procedures that apply to the work that is being done. Determine potential



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hazards and appropriate safety precautions before beginning any new operations. Be alert to unsafe conditions and actions. Report them immediately to expedite corrections.

### LABORATORY SAFETY AUDITS

Although Laboratory Managers conduct periodic audits of laboratories, it is recommended that the PI or her/his designee perform regular EHS audits of their lab areas.

### EQUIPMENT

Learn the location and use of the emergency equipment (fire blanket, safety shower/eyewash) in your area. Know how to obtain additional help in an emergency and be familiar with emergency procedures.

- Use equipment only for its designated purpose.
- Only use a fire extinguisher if you are trained to do so. The University prefers that you evacuate the area and allow physical plant and other trained individuals to fight the fire.
- Carefully position and secure any apparatus used for hazardous reactions in order to permit manipulation without moving the apparatus until the entire reaction is complete.
- Use mechanical devices for all pipetting procedures; never use mouth suction.

### PERSONAL SAFETY

- Protect the face, skin, and eyes, at all times by wearing appropriate protective clothing and equipment to avoid direct contact with chemical (i.e. chemical goggles, gloves, apron, coveralls or lab coat, etc.). Remove these items before leaving the laboratory. Do **NOT** wear lab coats or other potentially contaminated protective equipment out of the lab into elevators, during lunch breaks. **Do not** launder lab coats at home.
- Do not eat, drink, smoke, or apply cosmetics in the laboratory or in any location where chemicals or other hazardous agents are used or stored.
- Fully enclosed shoes must be worn in all laboratories. No open-toed or open-heeled shoes are allowed.
- Long pants or skirts must be worn in all laboratories-- no shorts allowed. Consult Lab Supervisor about the skirt.
- Never drink out of laboratory glassware. Glassware that has been washed with chromic acid can retain and leach this toxic chemical into contents of the glassware. Even small amounts of chromium salts are hazardous to your health.
- Move and stay out of the area of a fire or personal injury unless it is your responsibility to help meet the emergency.
- Avoid distracting any other worker. Practical jokes or horseplay will not be tolerated at any time.
- **Do not** pipette anything by mouth.
- Post emergency phone numbers near lab phones and on the lab doors.
- Conduct procedures that involve hazardous volatile chemicals or that may result in the production of aerosols or dangerous gases in a properly functioning chemical hood. If this is not feasible, call the Lab Manager at **757-823-0001** for a hazard assessment.



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- Be alert to unsafe conditions, and report them to the Lab Manager to expedite corrective action.
- Consider any unlabeled chemical solution hazardous until it is identified.
- Discard chemicals that have changed in color or appearance using approved disposal procedures.
- Allow only authorized personnel in the laboratory.
- Wash hands frequently - always before leaving the laboratory and prior to eating, smoking, applying cosmetics, etc.
- Remove gloves before leaving the laboratory. Do **NOT** wear gloves out of the lab into elevators or while typing on lab computers.

### **WORKING ALONE IN LABORATORIES**

**Prior approval of the Principal Investigator is required for working alone after hours.** Generally, it is prudent to avoid working alone at the bench in a laboratory. Individuals working in separate laboratories outside of working hours should make arrangements to check on each other periodically, or ask security guards to check on them. Experiments known to be hazardous should not be undertaken by a worker who is alone in a laboratory. Under unusually hazardous conditions, special rules may be necessary. When working with acutely toxic materials, never work alone in a laboratory.

### **UNATTENDED LABORATORY OPERATIONS**

**Prior approval of the Principal Investigator is required for unattended laboratory operations.**

Laboratory operations involving hazardous substances are sometimes carried out continuously or overnight with no one present. It is the responsibility of the worker to design these experiments so as to prevent the release of hazardous substances in the event of interruptions in utility services such as electricity, cooling water, and inert gas. Laboratory lights should be left on, and signs should be posted identifying the nature of the experiment and the hazardous substances in use. If appropriate, arrangements should be made for other workers to periodically inspect the operation. Information should be posted indicating how to contact the responsible individual in the event of an emergency.

### **INSPECTIONS BY REGULATORY AGENCIES**

**Contact EHS&RM office immediately if a state or local EHS regulatory agency arrives to inspect a University facility.**

There may be occasions when a representative of a state or local regulatory agency may come to University laboratories to audit compliance with various environmental health and safety regulations. These agencies include the Virginia Department of Environmental Quality, the Virginia Occupational Safety and Health Agency and the Hampton Roads Sewer District. In order to assure all appropriate information is provided to regulatory compliance officers during an inspection it is necessary that a representative of the EHS&RM be present during a regulatory inspection.



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### **Laboratory Housekeeping**

#### **GENERAL**

Laboratories should always be clean and orderly.

- Floors should be free of hazards. Never leave carelessly discarded objects, dropped objects, or spilled material on the floor.
- Always keep tables, chemical hoods, floors, aisles, and desks clear of all material not being used.
- There should always be two clear passageways to exits.
- There should always be clear space around safety showers or eyewashes, fire extinguishers, and electrical controls.
- Sink traps and floor drain traps should be filled with water at all times to prevent the escape of sewer gases into the laboratories.
- Any frequently used bench apparatus should be kept well away from any edges and secured whenever possible.
- Clean work areas upon completion of an experiment or at the end of each day.
- Bench tops and bench liners should be free of visible contamination.
- Reduce the risk of slips, trips, and falls by cleaning up liquid or solid spills immediately, keeping doors and drawers closed and passageways clear of obstructions.

#### **STORAGE**

- Sharp or pointed tools should be properly sheathed or stored.
- Clothing should be hung in proper locations and not draped over equipment or benches.
- Less commonly used equipment should be kept in storage.
- Do not store chemical containers on the floor.
- Do not store excess cardboard boxes, equipment boxes, Styrofoam, etc. under lab benches, on shelves, or above shelves/cabinets throughout the lab. This can be a safety as well as a fire hazard.

#### **PUBLICATION**

This policy will be widely distributed or distributed to the University community. To ensure timely publication and distribution thereof, the Responsible Office will make every effort to:

- Communicate the policy in writing, electronically, or otherwise, to the University community, within 14 days' approval;
- Submit this policy for inclusion in the online Policy Library with 14 days of approval;
- Post the policy on the appropriate website; and
- Educate and train all stakeholders and appropriate audiences on the policy's content as necessary. Failure to meet the publication requirements does not invalidate this policy.



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### **REVIEW SCHEDULE**

- Next Scheduled Review: 12/16/2024
- Approval by, date: President, 05/21/2015
- Revision History: 05/21/2016; 06/09/2017; 06/11/2018; 12/16/2021
- Supersedes: None - new policy

### **RELATED DOCUMENTS**

1. Laboratory Safety Guidance, OSHA Safety and Health Publication  
<https://www.osha.gov/Publications/laboratory/OSHA3404laboratory-safety-guidance.pdf>
2. Virginia Administrative Code 22.1-298.2 Regulations Covering Education Preparation Programs  
<https://law.lis.virginia.gov/vacode/title22.1/chapter15/section22.1-298.1/>
3. 8VAC20-542-220. Career and technical education – technology education  
<http://leg1.state.va.us/cgi-bin/legp504.exe?000+reg+8VAC20-542-220>
4. NSU Chemical Hygiene Plan  
<https://www.nsu.edu/policy/admin-42-22.aspx>
5. OSHA 29 CFR 1910.1450 Occupational Exposures to Hazardous Chemicals in Laboratories  
[https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_id=10106&p\\_table=STANDARDS](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=10106&p_table=STANDARDS)

### **FORMS**

There are no forms associated with this policy. Inspection forms accompany specific procedures.