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EMERGENCY PROCEDURES

**Emergency Telephone Numbers
24 HOURS**

EMERGENCY	
VCU POLICE	828-1234
FIRE	828-1234
MEDICAL/AMBULANCE	828-1234
POISON CONTROL	828-9123
CHEMICAL SPILLS	828-9834
RADIATION EMERGENCY	828-9834
BOMB THREAT	Depress same incoming line, dial *57 (This activates call tracing) Then call VCU Police – 828-1234
UTILITY FAILURE	828-9364
FLOODING	828-9364
TELEPAGE	*60 or 828-0951

|

Emergency Telephone Locations

Emergency response telephones (ERTS) are located throughout the campus and in VCUHS and VCU parking facilities. The outside phones are located in yellow boxes and have a flashing yellow light above them. To contact the police in an emergency, you need only to remove the phone from the cradle or push the button as indicated.

All emergency phones are location specific to identify the caller's location. If there is no communication once a call has been placed, a uniformed police officer will be dispatched to the location of the telephone. To locate the phones near your office call 828-1196 or go to the web address listed below.

| http://www.police.vcu.edu/safety/emergency_phones.html

Fire Emergency & Evacuation Procedures

Upon Discovering A Fire or Smoke:

R A C E

- **R**emove anyone in immediate danger.
- **A**ctivate the alarm by pulling the nearest fire alarm pull station. Call the emergency number 828-1234 and provide any information that you have.
- **C**lose all doors.
- **E**xtinguish the fire if possible. Use a portable fire extinguisher, if the fire is small and has not spread beyond the point where it started.

Medical Emergencies and Injuries

Emergency Care for Employees, Students or Visitors

Cases requiring emergency care (e.g., severe burns, heavy bleeding, unconscious, fractures, etc.) are to be taken to the Emergency Department on the ground floor of the VCUHS Main Hospital. If transportation is needed,

- **Dial 828-1234 for an ambulance**
- Give the exact location of the injured person
- Number of people requiring transport
- Description of the injury/illness.

Non-emergency Care

Employees, VCU

Employee Health Services (828-0584) provides medical treatment to employees who are injured on the job or acquire an occupational illness. Employees may be seen Monday through Friday from 8:30 a.m. to 4:00 p.m. After hours, injuries can be treated in the VCU Health Systems Emergency Room.

If an employee should incur a work-related injury or occupational disease, they **must notify their supervisor as soon as possible** so they do not forfeit any rights they may have to workers' compensation. The employee and supervisor are both required to complete the university's **Accident Report of Workers' Compensation Claim** form, **P-100**, **within 24 hours** of the accident/illness.

Students

University Student Health Services (USHS) is located at the sports medicine building, 1300 W. Broad St, suite 2200 (828-8828) and the VMI Building, Room 305, 1000 E. Marshall St. (828-9220). Hours are from 8:00 a.m. to 5:00 p.m. Monday through Thursday, and Friday 10:00 a.m. to 5:00 p.m. USHS has a staff member on call at all times. Should an urgent medical problem arise after hours, students may call the on call practitioner for advice.

The Wellness Center
815 Cathedral Place, 828-WELL
www.students.vcu.edu/health

Chemical Spill Response

VCU has a response program to help employees prepare for an event involving a hazardous material emergency. Within their own capacity, each department or unit is responsible for handling emergencies within their own work environments. Emergency preparedness plans should be developed and communicated to all affected employees prior to an emergency occurring. Specific emergency assistance is available through the Office of Environmental Health and Safety. Please note that commercial pre-packaged emergency spill kits are available to handle small scale spills of solvents, aldehyde-based products, biologicals, mercury, and acids/caustics. These spill kits can be purchased through a local laboratory safety supply company.

Report any spills of hazardous chemicals immediately by calling: 828-9834

Chemical/Radiation Emergency Line at 828-9834

Properly trained OEHS personnel will be available to evaluate and offer technical assistance to facilitate the clean-up of the spill. Be prepared to provide a description and location of the incident including the identity of the hazardous material(s) and the extent of any personnel contamination. Do not call housekeeping to manage these situations. If a spill does occur, the following general procedures may be used but should be tailored to fit the individual needs of the department's Emergency Response Plan:

1. Implement the department's Emergency Response Plan.
2. Attend to any persons who may have been contaminated. Chemical splashes on the skin or eyes must be treated immediately.
3. Notify persons in the immediate area about the spill.
4. Evacuate all nonessential personnel from the spill area.
5. Refer to the appropriate material safety data sheet(s) and if the spilled material is flammable, turn off all ignition and heat sources.
6. Avoid breathing vapors of the spilled material; evacuate the area if necessary.
7. Leave on or establish exhaust ventilation if it is safe to do so.
8. Secure the supplies necessary for the cleanup. Most small liquid spills (<100 ml.) can be absorbed with paper towels, sand, or an absorbent.
9. During the cleanup operation, wear appropriate protective equipment for which you have been fitted and trained to use
10. Notify OEHS if any regulated substance is involved. If you are unsure what constitutes a regulated substance, call OEHS for guidance.

After the cleanup of a chemical spill, all materials, including any paper towels used in the cleanup, must be disposed of as waste according to university hazardous waste disposal policies found elsewhere in this manual. Particular care should be exercised in handling the absorbent materials used in the cleanup of flammable liquids to protect against absorbent fire hazards.

Biological/Radiation Emergency

VCU has a response program to help employees when a hazardous material(s) or radiation emergency occurs. If you are involved in an incident, or observe such an incident, there is a 24 hour number you can call.

Calling 828-9834 will activate the university's chemical/radiation emergency response system. When you call, please provide the following information:

- * Your name and telephone number.
- * A description of the incident - is the incident life threatening?
- * The location of the incident.
- * Identity of the hazardous or radioactive material involved in the incident.
- * Extent of personnel contamination.

Bomb Threat Emergency

Depress same incoming line, dial *57 for private residence (This activates call tracing)
Depress same incoming line, dial *97 for state office

Then call **828-1234** with the following information:

- Your name
- Your department
- Your building and room number
- Time of the call
- Wording of the bomb threat
- Section of the building involved
- Size and shape to the package used
- Type of fuse
- Gender of the person making the call
- Background noises heard

Unusual Event Reporting

The VCU Department of Risk Management is a resource available to all staff for handling undesirable events that may occur. The Department of Risk Management serves as a liaison with the university's insurance carriers. The following events need to be reported, as soon as possible, to the Department of Risk Management at 828-7531.

- * Any accident; including university owned, rented, or state licensed vehicles.
- * All loss or damage to VCU property including theft, vandalism, water damage, wind damage, floods, lightning damage, etc.
- * Any event which may create a potential liability for the university.
- * Any incident involving boiler and machinery objects including all boilers, air conditioning units, and electrical equipment.

RESPONSIBILITY FOR SAFETY

Faculty, Employees, Volunteers, and Students

Faculty, employees, volunteers, and students should be aware of all departmental safety procedures for their particular area in addition to those procedures in this manual which apply. They should report accidents, injuries, or unsafe conditions either to the supervisor or the appropriate university office. It is hoped that all faculty, employees, volunteers, and students will maintain a positive attitude toward safety at all times.

Supervisors

Supervisors play a major role in providing a safe environment for students, patients, visitors, and employees. Refer to the separate policy statement at the end of this section.

Patients and Visitors

Patients and visitors are responsible for following all posted safety regulations and the directives of authorized personnel in matters pertaining to safety.

Chairperson of Academic Units/Directors of Non-academic Units

Each chairperson/director is responsible for the safe operation of their unit. The chairman/director is to appoint a safety committee consisting of a cross section of the unit (faculty, technical and non-technical staff, and students) which shall develop safety rules, including special procedures and precautions for any and all laboratories. Included in the responsibility is assessing the need for personal protective equipment and providing the equipment where required. A job hazard analysis using the form provided at the OEHS website (<http://vcu.edu/oehs/chemical/hazcom/jsaform.doc>) should be performed for each job title present within the unit. The job hazard analysis should be re-evaluated whenever responsibilities or a procedure that could change hazards occurs.

Faculty and Staff Liability

Recent court decisions have established that the faculty and staff of an institution may be personally and legally liable for the accidents of students and employees under their supervision, if the accident results from their negligence, or if the accident causes personal injury or property loss. Liability may also arise from the failure of superior to adequately supervise a subordinate or failure to establish and implement proper rules of conduct for the unit.

All personnel should be aware of the fact that they may be liable not only for their own acts or failure to act, but in many cases may be personally responsible for the acts or failure to act of others under their supervision.

Employees who are injured at work as a result of failure to use safety equipment or otherwise fail to comply with safety policies and procedures, may not be eligible for workers' compensation. In addition, classified and other university employees violating the university's safety policies/procedures may be disciplined under the state's Standards of Conduct, which could result in suspension or termination from employment.

Safety Committees

1. University Safety Liaison Committee

This committee is composed of university faculty and staff who have expertise in safety. The committee is responsible for developing policies and guidelines relating to safety for the entire institution. The committee is composed of the Director of the Office of Environmental Health and Safety (Chair), Director Physical Plant Division, Director of Campus Police, Director of Employee Health, the VCUHS Safety Officer and others deemed appropriate by the Chair. The committee is responsible for developing policies and university safety guidelines. Annually the committee receives nominations for the "University Safety Awareness Award." Those individuals or departments making an outstanding contribution to the safety of the university and academic medical center are recognized.

2. Radiation Safety Committee

Various members of the university and hospital community serve on this committee. The committee reviews and approves all research and clinical, human, and non-human uses of radionuclides and radiation producing devices.

3. Institutional Biosafety Committee

This committee has been established as required by the NIH Recombinant DNA Guidelines to review and approve research projects utilizing recombinant DNA. The committee also serves in an advisory capacity to the University Office of Environmental Health & Safety. The committee membership and expertise are mandated by the Guidelines.

4. Chemical and Biological Safety Committee

This committee has been established to monitor all aspects of laboratory safety to include laboratory safety training, laboratory inspection, and laboratory hazardous materials management, chemical and fume hood evaluation, and non-rDNA biological safety. The committee is composed of OEHS personnel, practicing scientists, and administrative staff, and faculty with expertise in laboratory safety.

5. Institutional Review Boards

(Committee on the Conduct of Human Research) This committee is composed of faculty members and three non-VCU affiliated individuals. It is responsible for protecting the safety and rights of persons involved as subjects in research at the university.

For information about the university safety committees, contact the Office of Environmental Health and safety at 828-6347

VCU Safety Support Services

1. **Office of Environmental Health and Safety (OEHS)**

The OEHS is responsible for oversight of a number of areas of safety including the following: radioactive materials and radiation producing equipment; infectious agents used in research; mutagenic, oncogenic, and/or teratogenic agents; recombinant DNA; areas related to the handling of biohazards, laboratory safety, OSHA compliance, fire and occupational safety. This office provides a number of services relating to environmental safety including consultation, training, and inspections.
2. **VCU Campus Police**

The VCU Campus Police are responsible for answering police calls, patrolling both campuses providing crime prevention assistance, and investigating crimes. The security division provides guard service for various buildings and escort service during the evening hours.
3. **VCU Physical Plant**

The VCU Physical Plant is responsible for maintaining VCU buildings and facilities. This office is also responsible for providing preventative maintenance.
4. **Employee Health Service**

The Employee Health Service screens new employees to detect active infectious diseases, establishes baseline data for infectious disease control, and provides medical surveillance of employees working with potentially significant biohazardous, chemical carcinogens, and toxins. The Employee Health Service also provides evaluation and treatment of occupational injuries and illnesses.
5. **VCU Risk Management Office**

The VCU Risk Management Office is responsible for providing risk management services to include development of systems to provide risk assessment, risk control, and claims management.

Safety Policy - Supervisor's Responsibilities

By definition, anyone who has responsibility to direct, power to control, or authority to hire, transfer, suspend, layoff, recall, promote, assign, reward, discipline, and respond to grievances or to effectively recommend such actions is considered a supervisor. -All individuals who are employed in a supervisory capacity are responsible for:

1. Being thoroughly familiar with and practicing the safety policies and procedures related to their area.
2. Identifying the need for and developing procedures designed to enhance safe working practices and reduce the incidence of employee injuries.
3. Ensuring that all appropriate safety equipment available and utilized and all subordinates are adequately trained to conduct assigned tasks.
4. Enforcing safety policies and procedures for their area either by counseling employees who fail to follow safety procedures and/or by taking disciplinary actions as set forth in the university "Standards of Conduct".
5. Submitting Workers' Compensation Accident Reports (P-100) and Physician Selection Forms (P-101) as required.
6. Completing the supervisor's section on all workers' compensation claims filed by their employees.
7. Ensuring workers' compensation claims are delivered to Employee Health Service **within 24 business hours of the accident.**
8. Investigating the causes of all work-related accidents.
9. Determining ways to prevent future accidents.
10. Notifying the Workers' Compensation Office at 828-1533 of any suspected fraudulent claims.
11. Accommodating employees who have medical restrictions as a result of an occupational injury/illness.
12. Ensuring employees are made aware of safety policies and procedures and any changes which affect them.
13. Conducting periodic inspections of the work area to identify hazardous conditions.
14. Reporting dangerous or potentially dangerous situations to appropriate university staff for corrective actions.
15. Measuring the extent the employee follows established safety practices or correcting the employee's unsafe work practices on the job.
16. Assessing workplace hazards and completing a job hazard assessment for each job title within the unit.

GENERAL SAFETY PROCEDURES

**Non-emergency Telephone Numbers
(Safety Resources)**

CHEMICAL/BIOLOGICAL SAFETY	828-1392
VCUHS EMERGENCY ROOM	828-9151
EMPLOYEE HEALTH	828-0584
ENVIRONMENTAL HEALTH AND SAFETY	828-6347
FIRE/OCCUPATIONAL SAFETY	828-7899
POLICE (Non-emergency number)	828-COPS (828-2677) OR 828-1196
SECURITY ESCORT SERVICE	828-WALK
RADIATION SAFETY	828-9131
WORK ORDERS	828-9444
REPAIRS (Facilities Management)	828-9444
RISK MANAGEMENT	828-8698
WORKERS' COMPENSATION	828-1533
RAM SAFE	828-SAFE

Chemical Safety

Chemical safety has become a large part of modern life. There are more than one half-million different man-made chemicals currently used in this country every day. Many more are introduced every year. We use chemicals not only at work, but at home as well. Cosmetics, cleaning solvents, medicines, and even the food we eat are made up of chemicals. Some chemicals such as explosives, solvents, and strong acids or bases can be extremely harmful if not handled properly. Others are relatively safe. The first step in avoiding physical harm from chemicals with which you come in contact, is to become aware of their associated hazards.

Chances are, as an employee of VCU that you will work with chemicals in some way. Typical uses range from a laboratory technician who utilizes hundreds of chemicals to office personnel who may use correction fluid, copy machine toner, or various cleaning agents. No matter who you are or where you work, carelessness with chemical products may result in serious injury or even death. It is essential that all employees discuss with their supervisors, the types of chemicals they will be using on the job and the hazards associated with their use. Remember, chemicals can be anywhere, and in order to handle them safely, you must be aware of the hazards they present. Hazard information can be found on the Safety Data Sheet.

Hazard Communication Overview

Hazard Communication, also known as the “Worker’s Right-to-Know” standard is a federal law which guarantees that all U.S. workers will be informed about workplace hazards. Employees must be told how to prevent injury from exposure to hazardous chemicals found within their work environment.

VCU, under the direction of the Office of Environmental Health and Safety (OEHS), has instituted a Hazard Communication Program. This is an effort to comply with regulations mandated by the Occupational Safety and Health Administration (OSHA). The following items are required under OSHA’s Hazard Communication Standard:

- C Each department or work area must maintain a comprehensive chemical inventory of all hazardous materials found within that respective department (the list must be updated as often as necessary to keep it current).
- C Safety Data Sheets (SDSs) are to be maintained for each chemical listed on the chemical inventory. Copies of the SDSs must be accessible to all employees during all shifts.
- C All containers of hazardous chemicals must be labeled with the chemical or product name, the appropriate hazard warnings of the product, and the affected or target organs.
- C A written program/plan must be developed to describe how compliance to the Hazard Communication Standard will be met.
- C Employees must be informed of the chemical hazards in their work place, how to protect themselves from these hazards, and what to do in the event of an emergency. Employees must also be informed of the requirements of the Hazard Communication Standard.

Safety Data Sheets

OSHA requires that manufacturers and importers of chemical products provide the consumers of those products with MSDSs. OSHA recently changed the Hazard Communication Act to bring the United States program into concord with United Nations hazard communication programs. As a result, the name of the information document was changed from material safety data sheet to simply safety data sheet. Much of the information on the old MSDS remains unchanged on the SDS, the most apparent difference being hazard warning symbols on the SDS. As with the soon-to-be discontinued MSDS, the SDS can answer the following questions regarding the chemicals you work with:

- C Chemical and common names of all ingredients which contribute to known hazards, and common name(s) of the mixture itself.
- C Physical and chemical characteristics of the hazardous chemicals.
- C Physical hazards (potential for fire, explosion, etc.)
- C Known acute and chronic health effects and related health information.
- C Primary routes of entry into the body (inhalation, absorption, or ingestion).
- C Information on exposure limits.
- C Information on whether the hazardous chemical is considered a carcinogen by OSHA, the International Agency for Research on Cancer, or the National Toxicology Program.
- C Precautions for safe handling.
- C Generally acceptable control measures (i.e., engineering controls, work practices, personal protective equipment, etc.).
- C Emergency and first aid procedures.
- C Date of MSDS/SDS preparation or latest revision.
- C Name, address and phone number of party responsible for preparing/distributing the MSDS/SDS.

Departments must maintain an accurate collection of SDS for each substance found on the chemical inventory. Safety data sheets are resources which can help one better understand safe handling of a chemical substance. Safety data sheets must be reviewed by all employees to help them fully understand the associated health hazards. Safety data sheets are not to be used to manage an emergency. Emergency procedures must be anticipated, planned for and reviewed before an incident occurs.

Safety data sheets (or MSDSs until they are completely phased out in 2015) may be obtained in a variety of ways. Links to manufacturers which supply many of VCU's laboratory chemicals are contained here: <http://www.vcu.edu/oes/chemical/hazcom/msds2.html>. This should be the first step in obtaining SDS. If you have difficulty with the links or cannot find a particular chemical, contact OEHS for assistance.

Safety data sheets may be accessed via the Internet or other computer media; however, hard copies must be readily available to departmental employees. Safety data sheets can be obtained directly from the manufacturer or distributor – many companies will fax SDS immediately upon request.

Labels and Other Forms of Warning

OSHA requires that manufacturers of chemicals label their products with the following information:

- Identity of the hazardous chemical.
- Appropriate hazard warnings.
- The name and address of the chemical's manufacturer, importer, or other responsible party; In addition, some labels will provide information regarding:
 - How to avoid injury (i.e., statements such as avoid exposures to skin).
 - Instructions on how to contain a leak or spill.
 - Handling and storage information.
 - First aid information.

If chemicals are transferred to other containers, (i.e., spray bottles), these containers must also be labeled with the identity of the chemical and the appropriate hazard warning information, and affected organs.

Safe Handling of Chemicals

The following guidelines should be practiced when handling chemical substances:

- Wash your hands thoroughly after using chemical substances and especially before going on breaks or to lunch.
- Ensure all containers are properly labeled. Only use products you are absolutely sure you know how to use safely.
- Dispose of unused, old or out-dated and unlabeled chemical substances, only by proper methods outlined in this manual's section on Chemical Waste Disposal.
- Use products as they are intended to be used. Manufacturers' instructions must be followed precisely: particularly if dilution of the original product is called for.
- Use the proper personal protective equipment when it is required for the safe use of a chemical substance.
- If a spill occurs and you or a coworker are exposed to a hazardous chemical, contact your supervisor immediately. If required, be aware of the locations of the eyewash fountain and emergency shower nearest you work area.
- When storing chemicals, make sure the lid for the container is secured. Keep storage areas neat and organized. Be sure emergency exits are never blocked. Keep quantities to a minimum. Avoid buying chemicals in bulk, buy only what is necessary to complete the project.

If you have any questions regarding the safe use of chemicals in your work environment, contact your supervisor and/or the OEHS Chemical/Biological Safety Section at 828-1392. The detailed written Hazard Communication Program is included in this manual.

Chemical Waste Disposal

OEHS is responsible for the proper disposal of chemical waste for the university. There are many state and federal regulations regarding the handling, storage, transport and disposal of chemical waste. The following guidelines concerning chemical waste should be adhered to:

- Chemicals are not to be disposed of in the sink, toilet, or floor drains.
- Chemical wastes are to be brought to OEHS for disposal. Waste appointments are accepted on Tuesdays and Thursdays from 9:00 - 10:30 a.m. An appointment can be made by calling 828-1392. In some buildings, OEHS picks up waste chemicals from individual rooms. When you arrange your appointment, the specific arrangements will be discussed.
- Chemical wastes must be stored properly prior to disposal. Containers should be compatible with the waste and protected from shock or breakage.
- All containers must be properly labeled. A waste disposal form must be completed and signed by the principle investigator. Containers which are not adequately labeled will not be accepted for disposal.
- Compressed gas cylinders should only be purchased from companies with a return cylinder policy or your department could be responsible for disposal costs.

If you have any questions regarding the disposal of chemical waste, please contact your supervisor and/or the OEHS Chemical/Biological Safety Section.

IF YOU DETERMINE THAT THIS PROGRAM IS APPLICABLE TO YOUR DEPARTMENT, PLEASE CONTACT 828-1392 TO OBTAIN A DETAILED WRITTEN CHEMICAL WASTE DISPOSAL PROGRAM.

INSERT PROGRAM HERE.

If Applicable

Insert Departmental Chemical Waste
Program

Hazard Communication Program

Virginia Commonwealth University

Virginia Commonwealth University, under the direction of the Office of Environmental Health and Safety (OEHS), has established a Hazard Communication Program to meet the requirements of the Virginia Occupational Safety and Health (VOSH) Standard 29 CFR 1910.1200. The Hazard Communication Standard states that all workers have a "right-to-know" what hazards they may come into contact with on their job. The program requires compiling a hazardous chemicals list or inventory, obtaining appropriate MSDSs, ensuring that containers are properly labeled, and providing training to employees. Under the OSHA Globally Harmonized System, MSDS are being converted to safety data sheets (SDS) which contain essentially the same information as the familiar MSDS but in slightly different format. OEHS maintains information on interpreting SDS information on Blackboard. In this document, "MSDS" and "SDS" are used interchangeably.

This program applies to all work operations within the university where workers may be exposed to hazardous substances under normal working conditions or during emergency situations. Due to the enormous variety of chemical hazards at VCU, it is necessary to implement the program within distinct management units. These units must be delineated by the dean, department head, director, or unit manager. An individual from each unit or subdivision of a unit must be made responsible for consolidating the following components of the hazard communication program for their area:

- I. Hazardous Chemical Inventory
- II. SDS or MSDSs
- III. Labels and Other Forms of Warning
- IV. Employee Information and Training
- V. Non-routine Tasks
- VI. Unlabeled Pipes
- VII. On-Site Contractors
- VIII. Program Review

I. HAZARDOUS CHEMICAL INVENTORY

Each unit must prepare a list of all known hazardous chemicals (products) used by that unit. The list must be updated as necessary

II. MATERIAL SAFETY DATA SHEETS (MSDS)

Material Safety Data Sheets are generally available on the internet for review by any employee of VCU. In addition, MSDSs must also be maintained by all departments throughout the university. Although supervisors are responsible for providing health hazard information to all employees, they should encourage their employees to further review MSDSs for any chemical substance which they seek additional information. MSDSs are not a tool to be used to manage an emergency and they should be reviewed periodically to ensure employees fully understand the associated health hazards of the chemicals in their work environment. Personnel from the Office of Environmental Health and Safety are available to assist employees with the information contained in the MSDS.

III. LABELS AND OTHER FORMS OF WARNING

Each unit must ensure that hazardous chemicals are labeled with the following information:

- a. Chemical identity
- b. Appropriate hazard warnings
- c. Name and address of the chemical manufacturer, importer, or other responsible party
- d. Affected target organs

When chemicals are transferred from the manufacturer's containers to secondary or portable containers, each unit must ensure that these secondary containers are labeled with the identity of the chemical(s), appropriate hazard warnings, and target organs.

IV. WORKER'S RIGHT-TO-KNOW INFORMATION AND TRAINING

All employees will be given a brochure explaining the requirements of the Hazard Communication Standard, as well as general safety information regarding chemical hazards. Units are requested to furnish employees with supplemental health hazard information regarding the specific chemical substances which they are required to work with. Employee training should be documented through the "Worker's Right-To-Know Statement" which must be signed by the employee and the employee's supervisor. Documentation of training will be kept by the Human Resources Office in employee's personnel files.

New employees will be required to attend a Safety Awareness Training program which will explain worker's "right-to-know." They will also be provided with a copy of the Safety Awareness Program - Employee Handbook. The program and handbook will familiarize new employees with their responsibilities and rights under the law. Once the orientation program has been completed, each new employee's supervisor is required to furnish the employee with supplemental health hazard information regarding the specific chemical substances which they are required to work with. These requirements will carry forward with OSHA's implementation of the Globally Harmonized Standard.

This training must include the following topics:

- C An overview of the requirements of the Hazard Communication Standard.
- C Information on the labeling system and how to use it.
- C How to review MSDSs and how to access them.
- C Information on the chemicals present in the various work operations.
- C Physical and health effects of the hazardous chemicals present in the work environment.
- C Methods and observation techniques used to determine the presence or release of hazardous chemicals in the work area.
- C Personal protective equipment and work practices to lessen or prevent exposures to chemicals.
- C Steps the department has taken to lessen or prevent exposures to chemicals.
- C Safety/emergency procedures to follow if an exposure occurs.

C Location and availability of the written Hazard Communication Program, chemical inventory, and MSDSs.

- Re-training for all employees is required when processes change which involve additional chemical hazards and as necessary to enhance employee awareness.

V. NON - ROUTINE TASKS

Each unit must identify all non-routine tasks. Before beginning a non-routine task, all chemical hazards must be reviewed.

VI. UNLABELED PIPES

Work activities are often performed in areas where chemicals are transferred through pipes. These pipes are not required to be labeled; however, the employee needs to be aware of potential hazards. Prior to starting work in areas having unlabeled pipes, the employee shall contact their supervisor to determine:

- a. The identity of the chemical in the pipes,
- b. Potential hazards,
- c. Safety precautions.

VII. ON SITE CONTRACTORS

- a. Units must provide contractors with the following information:
 - b. A list of hazardous chemicals to which the contractor's employees may be exposed,
 - c. Precautions necessary to protect employees during normal operating conditions and foreseeable emergencies,
 - d. A description of the labeling system used in that unit or department.

VIII. PROGRAM REVIEW

Each unit must review each of the above seven components of the Hazard Communication Program annually and update them as necessary.

Assistance in training, interpretation, and implementation of this program can be obtained from OEHS

Chemical Inventory List and Information Sheet

<http://www.vcu.edu/oehs/oehsforms.html>

Employee Training Records Form

<http://www.vcu.edu/oehs/oehsforms.html>

Instructions for Worker's Right-To-Know Statement

The brochure titled "Employee Right-To- Know" (two pages).

Copies of this brochure should be given and explained to all new employees.

- www.vcu.edu/oehs/WRTK-VCU.pdf
- Return Completed Original Form To: OEHS Box 980112
- www.vcu.edu/oehs/wrtk1_vcu.pdf

Laboratory Safety Program

The VCU Laboratory Safety Program was developed in an effort to meet the requirements of the Occupational Safety and Health Administration (OSHA) Standard, CFR 1910.1450 - Occupational Exposures to Hazardous Chemicals in Laboratories. The purpose of the standard is to protect employees from health hazards associated with hazardous chemicals in the laboratory and to keep exposures below the permissible exposure limits. Laboratory workers have a "right-to-know" what hazards they may come in contact with on their job. This standard attempts to facilitate this right.

The Laboratory Safety Standard exceeds many of the requirements of the Hazard Communication Standard for laboratories. The program requires compiling of a hazardous chemicals list, attaining appropriate MSDSs, ensuring that containers are labeled, developing written standard operating procedures for laboratory operations and providing training to employees.

This program applies to all laboratory operations within the university and health system where workers may be exposed to hazardous substances. Due to the enormous variety of laboratories at VCU, it is necessary to implement the program within distinct laboratory units. These laboratory units must be delineated by the dean, department head, director, or laboratory manager. An individual(s) from each laboratory unit must be made responsible for implementing the Chemical Hygiene Program (CHP). This individual is referred to by OSHA as the Chemical Hygiene Officer (CHO). The OEHS provides periodic training sessions to help CHO understand their responsibilities and obligations.

I. Chemical Hygiene Plan (CHP)

Under the Standard, employers using hazardous chemicals in the laboratory must develop and carry out the provisions of a written CHP. The CHP must include the necessary work practices, procedures, and policies to ensure that employees are protected from all potentially hazardous chemicals in their laboratory. Elements of a CHP include:

- a. Standard operating procedures (SOPs) relevant to safety and health considerations to be followed when laboratory work involves the use of hazardous chemicals
- b. The procedures used to determine control measures (i.e. exhaust ventilation, personal protective devices)
- c. Steps to ensure that these controls are operating properly
- d. Employee training methods and information
- e. Circumstances where an employee must request permission to conduct a particularly hazardous procedure
- f. Provisions for medical consultation and examinations
- g. Designation of a Chemical Hygiene Officer
- h. Provision for additional employee protection for work with particularly hazardous substances including:
 1. Establishment of a designated area.
 2. Use of fume hoods or glove boxes.
 3. Procedures for waste removal.
 4. Decontamination procedures.

All laboratory managers will be provided with a model CHP by OEHS. The model CHP provides the chemical hygiene officer with the necessary foundation to complete the requirements of the standard. Specific training on the laboratory safety program and generic lab safety topics are provided by OEHS.

II. Hazardous Chemical Inventory List

Each laboratory unit must prepare an inventory list of all known hazardous chemicals used. This inventory must be updated as necessary.

III. Material Safety Data Sheets (MSDS)

Safety Data Sheets (or material safety data sheets until they are phased out in 2015) are generally available on the internet for review by any employee of VCU. During this time of transition, there will be a mixture of SDS and MSDS available from vendor websites, either satisfies the requirements of the CHP. In addition, SDS/MSDSs must also be maintained by all departments throughout the university. Although supervisors are responsible for providing health hazard information to all employees, they should encourage their employees to further review SDS/MSDSs for any chemical substance which they seek additional information. Safety data sheets and MSDSs are not a tool to be used to manage an emergency and they should be reviewed periodically to ensure employees fully understand the associated health hazards of the chemicals in their work environment. Personnel from the Offices of Environmental Health and Safety are available to assist employees with the information contained in SDS/MSDS.

Although supervisors are responsible for providing health hazard information, they should encourage their employees to further review SDS/MSDS for any chemical substance which they seek additional information. Personnel from the Office of Environmental Health and Safety will be available to assist employees with the information contained in SDS/MSDS. A brochure is available from OEHS which provides additional information to help.

IV. Labels and Other Forms of Warning

Each laboratory must ensure that hazardous chemicals are delivered with the manufacturer's original label. When chemicals are transferred from the manufacturer's containers to secondary containers, the containers must be labeled with the identity of the chemical(s), appropriate hazard warnings, and target organs.

V. Program Review

Each unit must review each of the above components of the laboratory safety program annually and update them as necessary.

Assistance in training, interpretation, and implementation of this program can be obtained from the OEHS, Chemical and Biological Safety Section - 828-1392.

Laboratory Safety Guidelines

- I. Smoking and consumption of food/beverage is prohibited in the laboratory work area. Eating waivers may be granted by submitting an application to OEHS. The work environment will be evaluated and an eating in the laboratory waiver may be issued based upon hazards present and how they are controlled.
- II. Flammable and toxic materials shall be worked with inside of an explosion proof exhaust hood.
- III. Keep floors and aisles clear of obstructions.
- IV. When working with hazardous substances:
 - a. Do not wear contact lenses.
 - b. Always wear safety glasses.
 - c. Wear appropriate protective apparel, such as gloves, lab apron, etc.
 - d. Know the properties of the substances you are working with. Read the Material Safety Data Sheets.
- V. Know the locations of emergency showers and eye-wash stations, and how to operate these devices.
- VI. Irrigate eyes continuously for at least 15 minutes whenever a substance is splashed into them. Unless there is also trauma, it is generally not advisable to go to the Emergency Department first, as this will delay irrigations of the eyes and more serious injury may result. Call EMS to the scene where felt necessary.
- IV. Use only equipment which has been safety checked by authorized personnel. Do not use equipment which is past the due date for re-inspection and/or calibration.
- V. Do not place flammables into refrigerators unless they are designed as explosion-proof and so marked.
- VI. Store flammables in safety cans and safety cabinets.

- VII. Strong acids, strong bases, and flammables should always be stored separately. Do not place acids or bases into safety cabinets, which are only for the storage of flammable materials.
 - VIII. Store acids and bases on the lowest level possible to minimize damage and/or injury should the container break.
 - IX. All containers must be labeled to indicate their content and whether it is flammable, toxic, corrosive, highly reactive, or infectious. Unlabeled containers must be promptly labeled or disposed of if the contents are unknown.
 - X. Read and observe all applicable safety policies and procedures in this manual, including those for flammable and compressed gases.
 - XI. Dispose of glass, needles, and other sharp objects only into the labeled sharps containers. Sharps containers should be disposed of when three quarters full.
- Dispose of hazardous waste properly. Contact the Office of Environmental Health and Safety at (804) 828-6347 when in doubt about a substance.

Asbestos Management Program

The VCU Asbestos Management Program was developed to protect faculty, staff, students, and patients from asbestos exposure hazards within the university and hospital community. Asbestos-containing materials (ACM) are common within several university and hospital structures. Abatement of ACM must occur prior to undertaking renovation or demolition activities within affected areas. OEHS, Chemical/Biological Safety Section, staff provide key services throughout the abatement process, including: conduct of asbestos inspections in scheduled renovation areas to identify ACM, development of asbestos removal designs and project specifications, monitoring of abatement contractor work practices, collection of air quality samples during the removal process, and provision of quality control services during the abatement process to ensure that affected areas are suitable for reoccupation.

OEHS staff must frequently respond to asbestos emergency inspection requests which may involve a wide array of situations, ranging from isolated areas of suspect materials disturbed by routine maintenance activities to large-scale incidents such as collapsing of ceiling sections. OEHS staff inspect the affected areas (may involve the collection of bulk and/or air quality samples), to determine the related degree of asbestos exposure hazard to university employees, students, and visitors and develop appropriate hazard response actions.

OEHS staff also provides an array of asbestos training services to VCU/MCVH/MCVP personnel. Two-hour asbestos training is conducted annually for designated personnel who may come into contact with asbestos. OEHS staff will, upon request, attend formal and informal meetings in order to address employee questions and concerns involving scheduled abatement projects or other asbestos issues within the workplace.

The written Asbestos Management Program is maintained on file within the Chemical/Biological Safety Section Office of OEHS. The Asbestos Management Program document details all elements of the university asbestos best management practices including: portfolio requirements for asbestos abatement contractors, bulk sampling and air sampling protocols, an outline of asbestos awareness training program, and operations and maintenance (O&M) plans and/or management plans for a limited number of university buildings. While O&M and management plans have not to date been completed for all structures, OEHS maintains a database which compiles information from past

inspections, providing vast knowledge concerning the locations, condition, and related hazards of ACM in nearly all areas of university buildings. File information concerning asbestos in specific university and hospital buildings can be obtained by contacting OEHS Chemical/Biological Safety Section at 828-4404.

IF YOU DETERMINE THAT THIS PROGRAM IS APPLICABLE TO YOUR DEPARTMENT, PLEASE CONTACT 828-1392 TO OBTAIN A DETAILED WRITTEN VCU ASBESTOS PROGRAM. INSERT PROGRAM HERE.

If Applicable

Insert Departmental Asbestos Program

Ethylene Oxide Program

Ethylene oxide use within the university and health system has been greatly reduced and practically eliminated. The health system undertook a program to replace all ethylene oxide-based sterilizers with hydrogen peroxide and peroxyacetic acid-based machines. The OEHS no longer monitors occupational ethylene exposure within the health system. There are ethylene oxide-based sterilizers on the university side and monitoring is conducted on an as-needed basis.

Ethylene oxide is a flammable liquid, and its vapors can easily form explosive mixtures in air. Ethylene oxide has been shown to present a carcinogenic, mutagenic, genotoxic, reproductive, neurologic, and a sensitization hazard to workers. As a result, the Occupational Safety and Health Administration (OSHA) has issued a standard (29 CFR 1910.1047) to ensure proper protection of all workers exposed to ethylene oxide gas. The OSHA standard establishes a permissible exposure limit (PEL) of 1.0 part ethylene oxide per million parts of air (1.0 ppm), as an eight-hour time-weighted average and a short term exposure limit (STEL) of 5.0 ppm for 15 minutes. In order to ensure that all workers with potential exposures to ethylene oxide are adequately protected, the OEHS may conduct ethylene oxide personal and area monitoring, as well as provide consultation services to ensure that ethylene oxide exposures do not exceed the PEL or STEL during the work day. Where indicated, exposure monitoring is conducted at a minimum quarterly or whenever there is a change in production equipment, process, personnel, or control measures which may result in new or additional exposures to ethylene oxide. Additional information regarding ethylene oxide can be obtained from OEHS.

IF YOU DETERMINE THAT THIS PROGRAM IS APPLICABLE TO YOUR DEPARTMENT, PLEASE CONTACT 828-1392 TO OBTAIN A DETAILED WRITTEN ETHYLENE OXIDE PROGRAM.

INSERT PROGRAM HERE.

If Applicable

Insert Departmental Ethylene Oxide
Program

Formaldehyde Program

Formaldehyde is used in a variety of operations throughout the university and hospital but tissue preservation is by far the largest use. Work areas specifically known to use formaldehyde include the departments of Anatomy, Biology, Dialysis, Pathology, and the morgue. Potential health hazards associated with exposure to formaldehyde include cancer, irritation and sensitization of the skin and respiratory system, eye and throat irritation; and acute toxicity. As a result, OSHA issued a standard (29 CFR 1910.1048) to ensure proper protection of employees exposed to formaldehyde. The OSHA standard establishes a permissible exposure limit (PEL) of 0.75 parts formaldehyde per million parts of air (0.75 ppm), as an eight-hour time-weighted average, and a short term exposure limit (STEL) of 2.0 ppm for 15 minutes. In order to ensure all employees with potential exposure to formaldehyde are adequately protected, OEHS may conduct formaldehyde personal and area monitoring, as well as provide consultation services to ensure that formaldehyde exposures do not exceed the PEL or STEL during the work day. Where indicated, exposure monitoring is conducted at a minimum quarterly or whenever there is a change in production, equipment, process, personnel, or control measures which may result in new or additional exposures to formaldehyde. Additional information regarding formaldehyde can be obtained from OEHS.

IF YOU DETERMINE THAT THIS PROGRAM IS APPLICABLE TO YOUR DEPARTMENT, PLEASE CONTACT 828-1392 TO OBTAIN A DETAILED WRITTEN FORMALDEHYDE PROGRAM.

INSERT PROGRAM HERE.

If Applicable

Insert Departmental Formaldehyde
Program

Glutaraldehyde Program

Glutaraldehyde is a disinfectant that is especially effective for cold sterilization of instruments. As a disinfectant, glutaraldehyde is used to provide high-level disinfection of medical equipment which cannot be autoclaved. Potential health hazards associated with an exposure to glutaraldehyde include irritation of the eyes, throat, and lungs; cough, chest tightness, headache, asthma, or flu-like symptoms. As a result, OSHA has issued a standard to ensure proper protection of all workers exposed to glutaraldehyde. The OSHA standard establishes a permissible exposure limit (PEL) of 0.2 parts glutaraldehyde per million parts of air (ppm), as an eight-hour time-weighted average. This is a ceiling value limit which means this limit shall not be exceeded during any part of the work day, even for a brief period. In order to ensure that all workers with potential exposure to glutaraldehyde are adequately protected, where indicated, OEHS conducts area monitoring, as well as provides consultation services to ensure that glutaraldehyde exposures do not exceed the ceiling limit. Exposure monitoring is conducted at a minimum at least quarterly, or whenever there is a change in production, equipment, process, personnel or control measures which may result in new or additional exposures to glutaraldehyde. Additional information regarding glutaraldehyde can be obtained from OEHS. In addition, the health system Epidemiology Department may be contacted for copies of the VCUHS Sterilization/Disinfection Policy.

IF YOU DETERMINE THAT THIS PROGRAM IS APPLICABLE TO YOUR DEPARTMENT, PLEASE CONTACT 828-1392 TO OBTAIN A DETAILED WRITTEN GLUTARALDEHYDE PROGRAM.

INSERT PROGRAM HERE.

If Applicable

Insert Departmental Glutaraldehyde
Program

Lead Program

Lead-containing paint or surface coatings may be found in almost any structure regardless of the age of the building. The inadvertent release of lead dust or fumes from construction activities represents a potential health hazard to workers in adjacent areas. Lead dust or fumes may be inhaled, ingested, or both. The VCU Lead Inspection Program is designed to identify lead containing surface coatings that may present a potential hazard to workers performing renovation or construction activities on the material. The OEHS will assist departments in the selection of appropriate control measures, work practices, and personal protection equipment. All painted surfaces must be inspected for lead prior to any abrasive or destructive work being performed. For assistance contact the OEHS, Chemical & Biological Safety Section at 828-1392.

Mercury Handling Procedures

The Office of Environmental Health and Safety, Chemical and Biological Safety Section, helps manage mercury spills in the VCU and VCUHS environments. Both the health system and the university have undertaken aggressive programs to reduce or eliminate mercury, mercury-containing instruments, and equipment. Most applications where mercury has been used in the past can be adapted to use less hazardous alternatives. However, some applications for mercury cannot be substituted; therefore, mercury may still be encountered in the workplace. Staff utilizing instruments containing mercury must have a mercury spill kit available and have individuals trained in the proper management of mercury spills.

During normal business hours (excluding holidays), contact OEHS at 828-1392 for assist with mercury spills. For all other hours, call either *50 or Environmental Services at 828-9444.

All mercury spills must be reported to OEHS in order that OEHS staff can ensure that proper cleanup has been performed by monitoring the area for mercury vapor.

Nitrous Oxide Program

Waste anesthesia gases, although not yet covered by federal regulations, have long been recognized as possible health hazards to operating room personnel. Many different materials are used along with nitrous oxide to anesthetize patients; however, the nitrous oxide component of anesthetic gas mixtures is generally regarded as an indicator of employee exposure. Nitrous oxide is used in general surgery, oral surgery, and in ambulatory surgery. The nitrous oxide program ensures that the employees of the university and health system are not exposed to concentrations of nitrous oxide which exceeds the recommendations of the National Institute for Occupational Safety and Health (NIOSH) and the Joint Commission for Accreditation of Healthcare Organizations (JCAHO). NIOSH guidelines recommend that no worker be exposed to time-weighted average concentrations greater than 25 parts nitrous oxide per million parts of air (25 ppm) in hospital operating rooms and 50 ppm in dental operatories. The OEHS conducts periodic monitoring of nitrous oxide concentrations in the affected areas of the university and health system to determine occupational exposures. Monitoring is conducted at least quarterly or whenever there is a change in production, equipment, process, personnel, or control measures which may result in new or additional exposures to nitrous oxide. Any requests concerning information about the nitrous oxide policy should be directed to OEHS.

IF YOU DETERMINE THAT THIS PROGRAM IS APPLICABLE TO YOUR DEPARTMENT, PLEASE CONTACT 828-1392 TO OBTAIN A DETAILED WRITTEN NITROUS OXIDE PROGRAM. INSERT PROGRAM HERE.

If Applicable

Insert Departmental Nitrous Oxide
Program

Respiratory Protection Program

The VCU Respiratory Protection Program is designed to ensure the proper selection and use of respirators in the workplace. Respirators encompass a wide range of equipment from dust/mist respirators (dust mask) to self contained breathing apparatus (SCBA). Respiratory protection may not be used as a substitute for engineering controls and generally may only be used in situations where engineering controls are not feasible, during certain maintenance activities, or while engineering controls are implemented. The Respiratory Protection Program addresses selection, fit testing, training, maintenance/cleaning, storage, and medical surveillance. Employees must be fit tested, trained, and placed under a medical surveillance program prior to being allowed to wear respiratory protection. The program can be tailored to meet the specific needs and hazards associated with your workplace. OEHS will assist departments in implementing a program. All respiratory protection used by university personnel must be approved by OEHS. For further assistance on the VCU Respiratory Protection Program, please contact the OEHS, Chemical/Biological Safety Section at 828-1392.

IF YOU DETERMINE THAT THIS PROGRAM IS APPLICABLE TO YOUR DEPARTMENT, PLEASE CONTACT 828-1392 TO OBTAIN A DETAILED WRITTEN RESPIRATORY PROTECTION PROGRAM.

INSERT PROGRAM HERE.

If Applicable

Insert Departmental Respiratory Program

Biological Safety

Regulated Medical Waste Program (University)

The purpose of the regulated medical waste policy is to establish procedures pertaining to the management of regulated medical waste in the university community so as to protect the health and safety of employees and to enhance the environment and natural resources. The Virginia Department of Environmental Quality (DEQ) has issued guidelines for handling regulated medical waste. In these guidelines, DEQ has defined characteristics which classify waste as regulated. In general, a waste will be considered capable of producing an infectious disease if it has, or it may have, been contaminated by an organism that is pathogenic to humans, such an organism is not routinely and freely found within the community and if such organism has a significant probability of being present in sufficient quantities and with sufficient virulence to transmit disease. Examples of these types of waste include: cultures and stocks of microorganisms and biological, blood and blood products, pathologic wastes, contaminated, used, or broken sharps; animal carcasses, body parts, animal bedding and related waste; or any other miscellaneous waste that may have been used in the cleanup of a spill of any other regulated medical waste. It is the intent of VCU to comply with all state and federal regulations regarding the management of regulated waste. Therefore, generators of regulated medical wastes are responsible for the proper handling, storage, and disposal of these wastes. Central management of the university's regulated medical waste program is under OEHS and any request concerning information or regulated medical waste policies within the university should be directed to OEHS or the Epidemiology Department for questions pertaining to the health system program.

IF YOU DETERMINE THAT THIS PROGRAM IS APPLICABLE TO YOUR DEPARTMENT, PLEASE CONTACT 828-1392 TO OBTAIN A DETAILED WRITTEN REGULATED MEDICAL WASTE PROGRAM.

INSERT PROGRAM HERE.

If Applicable

Insert Departmental Regulated Medical
Waste Program

Pregnancy Policy, Mutagenic, Teratogenic, and Infectious Agents

The purpose of this policy is to establish guidelines to be followed when female employees working with mutagenic, teratogenic, and/or infectious agents either become pregnant or consider conception. These guidelines supplement but do not supersede or replace the present policy for infectious agents, or the Nuclear Regulatory Commission's requirement set forth in the university's By-Product Materials License.

Should a female employee working with mutagenic, teratogenic, or infectious agents become pregnant, or consider conception, it shall be her responsibility to contact Employee Health Services. The employee health physician, in conjunction with OEHS, will assess the potential embryo/fetus risk associated with the materials found in the employee's routine working environment. A summary of these findings will be distributed to the employee, her immediate supervisor, and to the Human Resources office.

The Employee Relations office will be responsible for counseling the employee and discussing the options available regarding employment status. The employee may choose to:

1. Apply for a transfer (permanent or temporary) in assignment to a lower risk area. Transfers are not guaranteed; however, every effort will be made to accommodate such a transfer.
2. Elect to go on a leave of absence.
3. Remain in her current position during her pregnancy. If the employee elects to remain in her current position, the employment relations counselor will schedule a conference for the employee with the Employee Health physician. It will be the responsibility of the Employee Health physician to once again inform the employee of the risks involved. The employee once she has had an opportunity to ask questions about the risks being taken will be asked by the Employee Health physician to sign a statement that she understands and accepts the risks involved.

Bloodborne Pathogens

All workers with potential exposure to human blood, blood products, or body fluids are covered under OSHA bloodborne pathogens regulations. The VCUHS Epidemiology Department guidelines section on bloodborne pathogens covers all personnel so exposed. The VCUHS Epidemiology Department should be contacted at 828-2121 for any questions concerning this policy.

Indoor Air Quality

The purpose of the VCU indoor environmental quality (IEQ) inspection program is to identify allergens, airborne contaminants, or other sources that adversely affect indoor environmental quality. Areas generally affected include classrooms, office, or areas where sedentary work is performed in energy efficient or buildings with limited fresh air makeup.

Symptoms of IEQ problems can include: cough, eye irritation, headache, dry and itchy skin, and allergic reactions.

Minimally, the OEHS, Chemical/Biological Safety Section will monitor the following environmental parameters in order to try to identify and mitigate IAQ problems:

- Temperature
- Relative humidity
- Carbon dioxide
- Illumination
- Visual check for mold, and mildew
- Room air flow

Additionally, volatile organic compounds (VOCs), oxides of nitrogen, formaldehyde, carbon monoxide, and sulfur dioxides may be monitored where necessary.

In many instances, it may be necessary for the department to arrange for some type of facility adjustment (i.e., having heating, ventilation, air conditioning equipment cleaned or adjusted).

If you would like additional information on IAQ inspections at VCU, please contact 828-1392.

Odor Complaints

Similar and perhaps related to IEQ complaints, odor complaints are a relatively common occurrence within the university and hospital system. In general, odors may arise from the ventilation or plumbing systems or from other sources. Odors are generally transitory in nature and therefore difficult at times to isolate. The OEHS, Chemical and Biological Safety Section staff will respond as quickly as possible to try and identify the source of the odor. Responses include visual walk-around inspections, monitoring for volatile organic compounds (VOCs) via a photo ionizing detector (PID), and on some occasions, initiation of an IEQ investigation. Requests for odor investigations should be directed to 828-1392.

Compressed Gas Safety Guidelines

More than a dozen gases commonly used at VCU are supplied in pressurized cylinders. The gases are supplied in this way simply because more gas can be shipped, stored, and distributed to a work area under high pressure than can be at atmospheric pressure. Gases under high pressure can be hazardous if not used properly. Therefore, the following basic safety rules must be followed to ensure safe use of cylinders in the workplace.

General Guidelines for Cylinder Use

Anyone procuring compressed gas cylinders should only patronize vendors who have a return cylinder policy. Many vendors will not take back empty cylinders and this becomes a disposal challenge and can be quite costly. The following guidelines should be observed when using compressed gas cylinders:

Always chain gas cylinders upright to a wall, cylinder truck, or cylinder rack, or post. This rule is especially important when the gas is in use because the regulator is on the cylinder valve and the cap is not in place. It is dangerous to store cylinders in any position other than upright. This applies to full and empty cylinders.

Always replace the cylinder cap when the cylinder is not in use and when it is being moved.

Never lift a cylinder by its valve or its cap, or with chains, slings, or magnets. Cylinders should only be moved by a cylinder hand cart or cylinder dolly.

Never place cylinders near elevators or in hallways, passageways, or work areas where they could be struck or hit by large objects.

If a cylinder is leaking, mark it and put it outdoors away from all sources of ignition. Post warning signs on the leaking cylinder and keep it well away from other cylinders. Call the cylinder supplier or gas distributor to manage the leaking cylinder.

Do not use cylinders as table legs to hold up other objects.

Never hammer, pry, or wedge a stuck or frozen cylinder valve to loosen it and never use a wrench. If a valve will not open by hand, call the supplier or gas distributor.

Do not drop a cylinder.

Do not allow grease, oil, or other combustible materials to touch any part of a cylinder. This rule is especially important when oxygen cylinders are involved. Grease or oil that oxidizes very slowly in air may burst into flame in pure oxygen.

Never use a cylinder unless the gas it contains is clearly stenciled on it or marked with a decal. Altering or defacing the name, numbers, or other markings on a gas cylinder is illegal and hazardous. Do not paint a cylinder.

Do not rely on the color of a cylinder to identify the gas inside. Different suppliers use different color codes. Return an unidentifiable cylinder to the supplier.

Keep cylinders away from electrical circuits and excessive heat. Most cylinders are made of steel and therefore will conduct electricity.

Never ground a cylinder or place it near an electrical conductor, including piping, plumbing, or anything that might carry stray electric current.

Never strike an arc or tap a welding electrode on a cylinder.

Keep cylinders away from sparks, and out of direct sunlight.

If a cylinder that has been stored outside is frozen to the ground, use only warm water to free it. If the valve is frozen, use only warm water to thaw it, or bring the cylinder inside and let it thaw at

room temperature.

Abandoned or stray cylinders (cylinders found in hallways or corridors) will be disposed of at the expense of the offending department. Call the supplier to pick-up empty cylinders.

No smoking is allowed in any area where an oxygen cylinder is present, including rooms where a flow meter is plugged into the wall outlet. Signs must be posted to designate these locations as no smoking areas. (If the whole building is signed and designated "No Smoking" additional individual room signs are not required.

Cylinders of compressed gases should be accepted only if equipped with protective stem covers and valve covers and are properly labeled.

Cylinders should only be purchased from companies with a return cylinder policy. The cost of disposing of a cylinder, purchased from a company without a return policy, will be the responsibility of the department which originally purchased the cylinder.

Valves and Regulators

Gas regulators reduce the pressure inside the cylinder to a safe level for use. They are designed for use with specific gases and within prescribed pressure ranges. Always use the proper regulator for the gas contained in the cylinder.

Always check the regulator before attaching it to a cylinder. If the connections do not fit together readily, the wrong regulator is being used. Damaged threads on the connecting nut or valve outlet can also make a regulator difficult to attach and likely to leak. Remove regulators from service if the glass in the gauge face is broken.

Always "crack" the cylinder valve (open it slightly and close it immediately) before attaching a gas regulator to any cylinder - except a hydrogen or fuel gas cylinder. Cracking removes any dirt that may be lodged in the valve outlet, and prevents dirt from entering the regulator. Do not stand in front of the valve outlet while cracking it, and do not point the outlet at anyone. Never put your hands in front of the escaping gas.

Wipe the outlet with a clean, dry, lint-free cloth once the cylinder valve has been cracked. The threads and mating surfaces of the regulator and hose connections should also be cleaned before the regulator is attached.

Always use a cylinder wrench or other tightly fitting wrench to tighten the regulator nut and hose connections.

Attach the regulator securely before opening the valve wide. Stand to the side of the regulator when opening the cylinder valve.

Leaks and Contamination

Once regulators and hoses have been attached they should be tested for leaks. To do this, (apply soapy water to the valves, joints, connections, and around the regulator gauges. If bubbles appear, a leak is present.) Turn off the gas and check all fittings and hoses for proper fit and installation. If the leak cannot be located and remediated, do not use the regulator.

Never hang tools, gloves, lab coats, or other clothing on top of the cylinder. They may interfere with the operations of the valve and prevent the gas from being shut off quickly in an emergency. In addition, clothes hung on an oxygen cylinder can become saturated with oxygen if there is a leak at the valve or connecting threads. Oxygen-saturated clothes will burn intensely if they come in contact with an ignition source, even a small spark.

Removal of Regulator

Close the cylinder valve first.

Bleed off the gas remaining in the regulator.

Unscrew the regulator.

NOTE: If a regulator is removed from an open-valve cylinder, the gas pressure would probably blow the regulator clear through the work area.

Faulty equipment should be taken out of service at the first sign of a leak or a mechanical problem. Keeping an eye on regulator gauges often reveals defects before they become serious. If the pointer on a regulator's low-pressure gauge creeps upward when the downstream line is closed, the regulator is defective. If the pointer fails to move from its stop pin when the regulator is pressurized, the gauge is faulty. And, if the pointer fails to return against the stop pin when the pressure is released, the equipment is defective and should be repaired. Have defective or faulty equipment taken out of service immediately and repaired only by properly qualified and authorized personnel.

Cylinder Storage

Rules for storing gas cylinders complement, but differ from, rules for using them. Although storage rules depend somewhat on the kind of gas in the cylinder, some general rules apply:

- Store all cylinders in designated areas.
- Store and use cylinders on a first-in, first-out basis.
- Label every cylinder with the name of the gas it contains. Never remove identifying labels. Never paint a cylinder.
- Chalk “MT” or “empty” on all empty cylinders.
- Keep all empty cylinders for the same kind of gas together. Separate full cylinders from empty ones.
- Keep fuel-gas cylinders well away from oxygen cylinders. OSHA regulations require that oxygen cylinders in storage be separated from fuel-gas cylinders and combustible materials by at least 20 feet or by a noncombustible barrier at least five feet high and having a fire-resistance rating of at least half an hour.
- Store cylinders outside whenever possible, but always protect them from the weather and from direct sunlight. Cylinders that must be stored inside should be placed in a dry, well-ventilated storage area, preferably constructed of fire-resistant materials. Never store any gas cylinder where the temperature may rise above 130° F.
- Never store cylinders near elevators, hallways, or corridors.
- Place caps on cylinders that are being stored or moved.

Precautions, procedures, and information on the safe handling and storage of cryogenic liquids will be handled on a case-by-case basis and may be obtained by contacting the Chemical and Biological Safety Office at 828-1392.

Chemical/Biological Safety Training

Many employees use hazardous materials in both university and hospital work settings. Two major programs have been established to provide the necessary safety training. Laboratory workers who use hazardous chemicals are covered by OSHA's Laboratory Standard; affected employees include those in dental, physician, animal, hospital, pharmaceutical, research, and academic laboratories. All other employees are covered by OSHA's Hazard Communication Standard, also known as Worker's-Right-to-Know. In addition, some employees must be apprized of other potential on-the-job hazards, such as asbestos, ethylene oxide, formaldehyde, nitrous oxide, or recombinant DNA.

The Chemical/Biological Safety Section has developed training classes and written programs in these areas. Below are listed the courses and manuals available to appropriate personnel.

Training Course

Asbestos Awareness
 Hazard Communication
 Hazard Communication In-service
 Laboratory Safety
 Respirator Training and Fit-Testing

Target Audience

Facilities Management employees
 All paid workers
 Specific for area, as requested
 Laboratory workers using hazardous chemicals
 Specific for area, as requested

Training Manual

Asbestos Program
 Chemical Waste Management Program
 Ethylene Oxide Program
 Formaldehyde Program
 Nitrous Oxide Program
 Chemical Carcinogen
 Biohazard and
 Recombinant DNA Safety Guide
 Chemical Hygiene Plan (generic)
 Respiratory Protection Program

 Hazard Communication Brochure
 Regulated Medical Waste Program

Target Audience

Facilities management superintendents
 Laboratory supervisors
 Supervisors of sterilization workers
 Laboratory supervisors
 Supervisors of anesthesia workers

 Principal investigators using those materials
 Chemical Hygiene Officers
 Chemical Hygiene Officers/PPD and Plant Operations
 Management, as needed
 New employees
 Supervisors in areas handling body fluids
 and tissues

Questions and requests for written materials should be directed to the Chemical/Biological Safety Section of OEHS at 828-1392.

Fire Safety

Familiarize yourself with at least two ways to exit your building in the event of a fire emergency. Make it a habit to look for two ways out of all buildings.

If you hear a fire alarm, do not wait to be told to leave. Leave immediately, using the nearest stairs, and direct all visitors, students, and patients to leave as well. (**EXCEPTION: Staff in Main and North Hospitals, Gateway, and CCH** in the absence of smoke or flame, will listen for telepage instructions as to the location of the Dr. Red before actually evacuating. If smoke or flame is visible, follow R.A.C.E.R. procedures immediately.)

General Fire/Emergency Evacuation Procedures

Before A Fire/Emergency

- Know the location of fire alarm pull stations and how to use them.
- Know the location of the nearest stairwells for your area.
- Know the locations of, and how to use, the portable fire extinguishers in your area.
- Know your designated meeting area away from the building
- Know your floor's evacuation coordinator (they should wear a red and white armband
 - during evacuations)
- If you need special assistance during an evacuation, please contact your floor monitor or
 - evacuation team representative beforehand.

On Discovering a Fire

- **Rescue** anyone who is in immediate danger.
- **Activate** an alarm **and call 828-1234 on campus, and 911 at off-campus locations** to give
 - the location and description of the fire. These numbers should be posted on phones.
- **Close** all doors (unlocked) and windows in the vicinity of the fire to contain smoke.
- **Extinguish** the fire (Only small fires and only if you have been trained in the proper use of
 - fire extinguishers)
- **Do not use the elevators.** If the exit is blocked by fire, heat, or smoke, go to another exit.
 - If all exits are blocked, return to your room, close the doors and call 828-1234 to report
 - your location.

If you are an Evacuation Coordinator (Person trained and responsible for the evacuation program in each building):

- Call the emergency number, **828-1234** and let them know you are evacuating. These numbers should be posted on phones.
- Go to the designated area outside the building to meet the floor monitors as they finish evacuating their sections.
- Keep track of which floor monitors have reported and which ones have not.
- When the fire department arrives, give them any information that you have, including which areas have not been evacuated.
- Use the floor monitors to help keep people away from the building.
- After the emergency, get permission from the fire department before reentering the building.
- Inform the VCU Police if there is anyone who refuses to evacuate.
- Give the fire department the locations of anyone who is unable to evacuate.

If you are a Floor Monitor (person responsible for evacuating a specific area, usually a floor):

- When the alarm sounds, go door to door telling everyone in your section that they must leave the building. Ask them to close the door as they exit the room.
- Start at the furthest point from the exit you will be using and work back towards the exit.
- Direct people to their nearest exit.
- After everyone in your section has been told to evacuate, report to the Evacuation Coordinator:
 - Your area is clear, or
 - There is someone in your area that refuses to evacuate, and/or
 - There is someone in your area that is unable to evacuate, and/or
 - Any other information, such as if the fire is in your area.

Evacuation Procedures for Individuals With Disabilities

See new procedure at www.vcu.edu/oehs/fire/vcuevacuationplan.pdf

Fire Extinguishers

Fire extinguishers are to be used only after the evacuation plan of the building is underway. The VCU Office of Environmental Health and Safety offers training classes on how to use a fire extinguisher. Call 827-0357 to schedule a class for you or your department. If you know how to use an extinguisher, locate and identify the ones in your area...before you need them. OEHS supplies and maintains several kinds of fire extinguishers.

- Class A: for wood, paper, and cloth
- Class B: for grease, paint, and gasoline
- Class C: for fires involving energized electrical equipment
- Class ABC: for all fires, except combustible metals

Remember; only use an extinguisher after you start the emergency evacuation procedures.

Occupational Safety

Your safety on the job is a concern to us. The VCU Occupational Safety Section of the Office of Environmental Health and Safety is available to assist you in your goal of an accident free work environment. The Occupational Safety Section is responsible for ensuring that regulations established by Virginia Occupational Safety and Health (VOSH) are communicated to administration and the appropriate actions taken. The section is responsible for safety policy and procedure development, implementation, monitoring and documentation. This is achieved through close cooperation between OEHS and university staff. OEHS provides direct and /or contract assistance to departments as well as active committee membership in order to carry out this critical function.

Your supervisor is responsible for seeing that you have knowledge and skills necessary to operate in the university, hospital and clinic environment. The Occupational Safety Section can provide assistance when safety questions arise at 828-0040.

REPORTING OF ON-THE-JOB INJURIES/ILLNESSES

Under of the provision of the Workers' Compensation Act (the Act), we are required to provide certain benefits to employees who incur an injury/illness in the course of official work-related duties. All of our employees (faculty, full-time staff, part-time staff, and hourly workers,) are eligible to receive workers' compensation benefits:

- If an employee should incur a work-related injury or occupational disease, they **should notify their supervisor as soon as possible** so that they do not forfeit any rights they may have to workers' compensation.
- The **employee and supervisor** should then complete the university's **Accident Report of Workers' Compensation Claim** form, **P-100**, **within 24 hours** of the accident/illness.

- The **employee is required** to select a physician to treat his/her injury/illness from the panel of physicians listed on the **Physician Selection for Occupational Injuries/Diseases** form, **P-101**.
- Both forms listed above should be made available in every department. A supply of the forms can be ordered by contacting the Workers' Compensation Office at 8-1533.
- The completed forms should be sent or taken directly to **Employee Health Services**, First Floor, West Hospital, Box 980134.
- Employee Health completes the medical information on the claim form and forwards the claim to the Workers' Compensation Office.
- All claims for workers' compensation are then forwarded to the state's Division of Risk Management (DRM) upon receipt by the university's Workers' compensation Office.
- DRM reviews the claim and determines if it is covered under the provisions of the Act.
- Although an employee may have been injured at work, the claim may not always be considered compensable under the workers compensation laws in Virginia.
- The employee's injury must be determined to be "by accident" and "arising out of and in the course of employment" in order to be covered under the Act. In other words, the employee must have been injured by an unusual and unexpected event which occurred in the performance of his/her duties. The accident must also have happened suddenly and at a specific time. Injuries caused by misconduct, failure to use safety equipment, repetitive motion, stress, and/or horseplay, are generally not covered under the Act.
- DRM will pay for one initial visit to an emergency room as well as all treatment deemed necessary by the physician the employee selects from the university's/hospitals' panel. The employee must select one of these panel physicians, as DRM may deny the claim if the employee seeks medical treatment from a non-panel physician.
- The employee is required to keep all medical appointments and accept the treatment recommended by the panel physician as well as by any other medical care provider to whom the employee is referred.
- In general, medical coverage is provided for a period of up to two years from the date of the employee's injury/illness. If the employee is disabled from work (as determined by the panel physician) for more than seven calendar days, the employee will be eligible to receive medical benefits for as long as necessary.
- Salaried employees who are disabled from work by their selected physician (see above) will be eligible to receive workers' compensation leave for up to 92 calendar days of disability.
- Hourly employees will be paid compensation directly by DRM. Since workers' compensation does not begin until the employee is disabled for more than 7 calendar days under the Act, hourly employees will not be paid for the first 7 calendar days of disability.

Proper Lifting Techniques

While many different kinds of injuries may occur in the work place, back injuries are the most frequent. Improper lifting technique is the most common cause. You will probably have to lift something nearly every day. If the load is not light enough to be handled easily, use a mechanical lift, such as a hand truck, or ask someone to help you, whenever possible. If you must lift an object by yourself, follow these steps:

1. Put one foot next to the load, the other foot behind the load. Stand as close to the load as possible.
2. Bend your knees, keeping your back and head straight.
3. Use your whole hand - not your fingertips - to grasp the load. Bring the load close to your body.
4. Lift the load by straightening your knees.
5. Hold the load close to your body while carrying it, centered over your legs rather than to one side of your body.
6. Never twist or turn while lifting. Do not bend your back. Instead, use your legs to push the load upwards. In this manner, your legs and arms do the work, not your back.
7. Follow this procedure in reverse to put the load down.

The Fire and Occupational Safety section of OEHS is available to assist departments in developing and implementing Back Injury Prevention or Proper Lifting Programs, call 828-7899

Ergonomics

Ergonomic evaluations of your work area can be performed by request. Call 827-0357 or see our website at www.vcu.edu/oehs/fire/ergonomics.

Personal Safety Precautions

While walking or driving on the campuses after hours, follow these precautions:

1. Whenever possible, walk with another person or several people. If this is not possible a Security Escort Service is available on both campuses. You can use the emergency phones or call 828-WALK from 6 p.m. to 7 a.m. to use the Security Escort Service.
2. If you must walk alone, stick to well-lighted, well-traveled parts of the campuses. Avoid walking near shrubbery or in dark areas or alleys.
3. Have your keys in your hands before you leave your car or your office.
4. Note the locations and learn to recognize the emergency telephones on both campuses and in the parking decks.
5. The VCU Police emergency number is 828-1234. Note: 911 will not dial direct from university phones.

6. If you are working alone after hours, keep your office door locked. Do not prop or leave doors open!
7. If you are followed while walking, cross the street and change directions. Go toward people or well-lighted areas. If you are followed by a vehicle, turn around and walk in the opposite direction, or if possible, walk down a one-way street going against the flow of traffic.
8. If you are followed while driving, do not drive directly home. Drive to a public area, hospital, or police station.
9. If you are approached in a threatening way, do not panic. Try to remain calm and think clearly. No set of guidelines will insure your safety because each situation is unique. However, obey your natural instincts and don't take chances that will result in your injury.

VCU Campus Police

The VCU Campus Police consists of over 60 professionally trained men and women who help safeguard and protect the university community. The Officers are sworn and certified as police officers within the Commonwealth of Virginia.

Uniformed Officers maintain foot and mobile patrols and perform the various functions of public service, including enforcement of state law, local ordinances and university regulations. Continuous in-service training classes are conducted to help support the functions of the department, promote university crime prevention programs, and encourage individual career development and training.

The VCU Campus Police is also supported by non-sworn full and part-time security personnel. Their assignments and responsibilities include monitoring pedestrian traffic in campus buildings, dormitories and parking decks; making building security checks; maintaining the bicycle registration program; and providing security escort services.

The Campus Police emergency phone number is 828-1234

Non-emergency number 828-1196

VCU Campus Police Offices are located at 940 West Grace Street and 1000 E. Marshall St.

Emergency Telephones

Emergency telephones are located throughout the campuses and in VCU's parking decks. The inside telephones are red; the outside phones are located in yellow boxes and have a flashing yellow light above them. To contact the police in an emergency, you need only to remove the phone from the cradle or push the button as indicated.

All emergency phones are location specific, to identify the caller's location. If there is no communication once a call has been placed, a uniformed police officer will be dispatched to the location of the telephone. To locate the phones near your office check the emergency phone location list of the Emergency Procedures chapter of this manual or call 828-1196.

Hazardous Energy Control (Lockout/Tagout) Program Policy

I. PURPOSE

The purpose of the Hazardous Energy Control Program (Lockout/Tagout) is to prevent injury to employees caused by the unexpected energization, start-up, or release of stored energy. Prevention methods will consist of attaching **lockout/Tagout** mechanisms to **energy isolating devices**, to disable machines or equipment. This program meets or exceeds the requirements found in the Virginia Occupational Safety and Health Standard (VOSH) 1910.147, "The Control of Hazardous Energy (Lockout/Tagout)." A copy is available at the Office of Environmental Health and Safety. **Highlighted** words are found in the Definitions in Appendix A, which follows this section. (This policy was reviewed and approved by the university Safety Liaison Committee Dec. 1991.)

II. SCOPE

Any employee servicing or maintaining machinery or equipment, where the unexpected energizing start up or release of stored energy could occur and cause injury, is to isolate and make inoperative the machinery or equipment before servicing. **Tagout** is acceptable only if **lockout** cannot be done. Areas allowing **tagout** only are to be approved by the employee's supervisor.

When equipment/machinery is purchased, repaired, renovated, or modified, **energy isolating devices** will be installed to accept a **lockout** device. This is required by Virginia Occupational Safety and Health (VOSH).

This policy does not apply to supervised cord and plug connected equipment, or **hot taps**.

III. RESPONSIBILITY

The Office of Environmental Health and Safety (OEHS), developed this policy and is responsible for maintaining the written hazardous energy control program. OEHS is also responsible for developing a **lockout/tagout** training program.

The Physical Plant Division, Plant Operations, Bio-med Engineering, Student Affairs, Business Services and any department with employees that may be involved in servicing equipment will be responsible for:

1. Identifying individuals who need training, including employees needing retaining when changes are made,
2. Developing specific procedures for controlling hazardous energy for each machine or piece of equipment that applies to the Control of Hazardous Energy Standard 1910.147,
3. Testing machines to verify the effectiveness of energy controlling measures,
4. Inspecting annually to ensure compliance with this **lockout/tagout** policy,
5. Identifying those employees to be trained as an **authorized employee** to service equipment, as defined in Appendix A.
6. Ensuring that new equipment, or existing equipment that is repaired, renovated, or modified is designed to accept a **lockout** device,

7. Providing protective materials and hardware needed to isolate, machines from **energy sources** (such as: locks, tags, chains, wedges, self-locking fasteners, adapter pins), enforcing this university policy through supervision, using when necessary warnings, suspension, and termination.

IV. ENERGY CONTROL PROCEDURE

Facilities Management, Student Affairs, Business Services, and any department that has employees which may be involved in the task of servicing equipment are required to have detailed **lockout** procedure for each similar piece of machinery or equipment. The following needs to be included in each procedure:

1. The name of the equipment or machinery
2. The types and magnitudes of energy(s) and hazards
3. Names/job titles of **authorized employees to lockout or tagout**
4. Names/job titles of **affected employees** and how to notify
5. Types and location of **energy isolating devices**
6. Types of stored energy and methods to dissipate or restrain
7. Methods selected IE: locks, tags, additional safety measures
8. Specific requirements for testing equipment to see that **lockout/tagout** device or other energy control measures are effective
9. Names/job titles of employees authorized for group **lockout or tagout**.

The VCU Lockout/Tagout Procedure , APPENDIX B, explains the implementation of this policy.

V. TRAINING AND COMMUNICATION

A train-the-trainer program designed for supervisors will be developed and administered by OEHS. All employees are to be trained by their supervisor before performing maintenance or service to machines and equipment. The training program includes the following:

1. Recognition of applicable hazardous **energy sources**,
2. Methods of energy isolation and control,
3. **Lockout/tagout** system procedure,
4. Removing locks and tags and restoring machines to normal operation,
5. Group **lockout/tagout**,
6. Personnel or shift changes,
7. Testing or positioning of machines,
8. Types and magnitudes of energy available at VCU.

Authorized and **affected employees** are to be trained when there is a change in their job assignments; or in machines, equipment or processes that present a new hazard. If there is a change in VCU's energy control procedures, the appropriate employees will be trained.

APPENDIX A - HAZARDOUS ENERGY CONTROL (LOCKOUT/TAGOUT) - DEFINITIONS

Affected employee.

An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under **lockout** or **tagout** or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

Authorized employee.

A person who locks or implements a **tagout** system procedure on machines or equipment to perform the servicing or maintenance on that machine or equipment. The authorized employee has been designated to perform such duties by the employer. The authorized employee not only attaches the lock and tag but must also perform the servicing or maintenance.

Capable of being locked out.

An **energy isolating device** will be considered to be capable of being locked out either if it is designed with a hasp or other attachment or integral part of which, or through which a lock can be attached, or it has a locking mechanism built into it. Other energy isolating devices will also be considered to be capable of being locked out, if **lockout** can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

Energized.

Connected to **energy source** or containing residual or stored energy.

Energy isolating device.

A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: A manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and, in addition, not pole can be operated independently; a slide gate; a slip blind; a line valve; a block; and any similar device used to block or isolate energy. The term does not include a push button, selector switch, and other control circuit type devices.

Energy source.

Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Hot tap.

A procedure used in the repair, maintenance and service activities that involves welding on a piece of equipment (pipelines, vessels or tanks) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

Lockout.

The placement of a lockout device on an energy isolating device, consistent with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout device.

A device that utilizes a positive means such as a lock, either key or combination type to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment.

Normal production operations.

The use of a machine or equipment to perform its intended production function.

Servicing and/or maintenance.

Work place activities such as constructing, installing, setting up, adjusting, inspecting, modifying and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or un-jamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or start up of the equipment or release of hazardous energy.

Setting up.

Any work performed to prepare a machine or equipment of perform its normal production operation.

Tagout.

The placement of a tagout device on an energy isolating device, using an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Tagout device.

A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device consistent with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

**APPENDIX B - HAZARDOUS ENERGY CONTROL PROCEDURE
(LOCKOUT/TAGOUT)**

A. Purpose

This procedure establishes the minimum requirements for the lockout or tagout of *energy isolating devices*. It is to be used to ensure that the machines or equipment are isolated from all potentially hazardous energy, and locked out before employees perform any servicing or maintenance activities where the unexpected energization, start-up or release of stored energy could cause injury.

B. Responsibility

Facilities Management, Student Affairs, Business Services employees (including supervisors), and all other appropriate employees are to be instructed in the safety requirements of the lockout (or tagout) procedure. Each new, transferred, and other employee whose work operations are or may be in the area, are to be instructed in the purpose and use of the lockout or tagout procedure. Documents are to be current and maintained by the department/employee authorized to lockout/tagout. Each shop should conduct inspections and review the energy control procedures at least annually.

The lockout/tagout procedure also specifies the requirements for:

1. Lockout/tagout system procedure
2. Normal removal of locks/tags
3. Transfer of locks, tags, or responsibility at shift change
4. Group lockout/tagout
5. Testing or positioning of equipment

C. Training

All employees performing maintenance or servicing on machines and equipment are required to be trained in the control of hazardous energy procedures prior to performing maintenance or servicing. Training can be arranged and scheduled through the Occupational Safety Office at 828-0040.

Affected employees are required to have training whenever there is a change in their job assignments, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures.

D. Preparation for Lockout or Tagout

A survey should be conducted to locate and identify all isolating devices to be certain which switch(es), valve(s), or other *energy isolating devices* apply to the equipment to be locked or tagged out. More than one *energy source* (electrical, mechanical, or others) may be involved.

E. Sequence of Lockout or Tagout Procedures

1. Notify all *affected* employees that a lockout or tagout system is going to be utilized and the reason for it. This normally includes notifying the JC-85 Control Center. The *authorized* employee should know the type and magnitude of the energy that the machine utilizes, the possible hazards, and the method for controlling the energy.
2. If the machine or equipment is operating, shut it down by the normal stopping procedure.
3. Isolate the equipment from its *energy source(s)*. This may be done by an operating switch, valve, or other *energy isolating devices*. Stored energy (such as that in springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as repositioning, blocking, bleeding down, etc.
4. Lockout and tagout the *energy isolating devices* with tags and assigned individual locks. If the device will not accept a lockout device, additional safety measures are to be taken to control the potential for the hazardous release of energy. This may include isolating circuit elements, blocking of a controlling switch, or removing a valve handle, etc..
5. Lockout or tagout devices are to be affixed to each *energy isolating device* by *authorized* employees in a manner that will hold the energy isolating devices in a "safe" or "off" position. Tagout devices are to be fastened at the same point at which the lock is attached or as close as possible to the energy isolating device.
6. Relieve all potentially hazardous stored or residual energy by disconnecting, restraining, etc. to render the equipment safe. Prior to working on machines or equipment verify that isolation or de-energization has been accomplished by operating the push button or other normal operating controls to make certain the equipment will not operate.
7. Failure to follow the set lockout/tagout procedures could result in suspension from work or dismissal, to be determined by individual department administrators.

F. Removal of Lockout/Tagout Devices

Before lockout or tagout devices are removed and energy is restored to the machine or equipment, the following procedures are to be followed by the *authorized* employee(s).

1. After service and/or maintenance is complete and equipment is ready for *normal production operations*, check the area around the machine(s) or equipment to ensure that no one is exposed, and notify *affected* employees that lockout devices have been removed.
2. After all tools have been removed from the machine or equipment, guards have been reinstalled and employees are in the clear, all lockout/tagout devices are to be removed by the employee who applied the device.
3. Operate the *energy isolating devices* to restore energy to the machine or equipment. Check for proper operation.

G. Exception to the Above:

When the *authorized* employee who applied the lockout or tagout device is not available to remove it, that device may be removed under the direction of the supervisor of the craft or department, provided that the following is done:

1. Verify that the *authorized* employee who applied the device is not at the facility.
2. Make all responsible efforts to notify the *authorized* employee that his/her lockout/tagout device has been removed.
3. See that the *authorized* employee has been informed before resuming work.

H. Requirements for locks and tags

Tags are only warning devices and are to accompany locks, which provide the physical restraint on *energy isolating devices*. Tags will be accepted only if lockout cannot be accomplished. Tagout devices are to be attached at the same location that the lockout device would have been attached.

Lockout devices and tags are to be provided by the employing department. Lockout devices must be marked so that they can identify to whom they belong. These locks should only be used for controlling energy, and are never to be used for other purposes.

I. Lockout/Tagout Device Guidelines

Lockout devices and tagout devices must indicate the identity of the employee applying the device.

Lockout and tagout devices are to be capable of withstanding the environment to which they are exposed, for the maximum period of time that exposure is expected.

Lockout devices need to be substantial enough to prevent removal without the use of excessive force or unusual techniques, such as with the use of bolt cutters or other metal cutting tools.

Tagout devices including their means of attachment must be substantial enough to prevent inadvertent or accidental removal.

Tagout devices are to be constructed and printed so that exposure to weather conditions or wet and

damp locations will not cause the tag to deteriorate or the message on the tag to become illegible.

Lockout and tagout devices are to be standardized within each division in at least one of the following criteria: color, shape, or size,(in the case of tagout devices, print and format shall be standardized).

Tagout device attachments are to be of a non-reusable type, attachable by hand, a minimum unlocking strength of no less than 50 pounds.

Tagout devices shall warn against hazardous conditions if the machine or equipment is *energized* and shall include a legend such as the following: DO NOT OPERATE, DO NOT START, DO NOT CLOSE.

J. Periodic Inspection

The department responsible for the employees performing lockout/tagout is required to conduct a periodic inspection (at least annually) of the energy control procedures to ensure that the requirements of the Hazardous Energy Policy are being followed. The inspection is to be conducted by an *authorized* employee other than the employee(s) utilizing the energy control procedure being inspected.

The deficiencies or problems observed should be recorded and reported to the appropriate supervisor for correction. Each department is to keep on record a copy of these inspections, and forward a copy to OEHS.

K. Shift or personnel changes

Specific procedures are to be used during shift or personnel changes to ensure the continuity of lockout or tagout protection, including provision for the orderly transfer of lockout or tagout devices between off-going and on-coming employees.

1. The off-going employee should remove his/her lockout or tagout device before the on-coming employee arrives.
2. The off-going employee should apply a tagout device after removing his/her lockout device, indicating that the lock had been removed, but that the machine or equipment had not been *energized*.
3. The on-coming employee verifies that the system is still de-energized, and removes the interim tag and substitutes his/her lockout device, insuring that continuous protection is maintained from one shift to another.

L. Group lockout/tagout

When service or maintenance is performed by a crew, craft, department or other group, they are required to use a procedure which affords the employees a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device.

1. Primary responsibility is vested in an *authorized* employee for a set number of employees working under the protection of a group lockout or tagout device (such as an operations lock).
2. The *authorized* employee is to have a way to ascertain the exposure of individual group members with regard to the lockout or tagout of the machine or equipment.
3. When more than one crew, craft, department, etc. is involved, assignment of overall job-associated lockout or tagout control responsibility should be designated to an *authorized* employee to coordinate *affected* work forces and ensure continuity of protection.
4. Each *authorized* employee is to affix a personal lockout or tagout device to the group lockout device, group lock box, or comparable mechanism when beginning work, and is to remove those devices when stopping work.
5. The equipment cannot be re-energized until all individuals in the group have removed their lock or tag.

M. Testing or positioning of machines or equipment

When testing or positioning of machine during service or maintenance requires temporary removal of the lockout/tagout device, the following sequence of actions is to be followed.

1. Clear the machine or equipment of unnecessary tools and materials.
2. Remove employees from the machine area.
3. Remove lockout or tagout devices, remember to notify *affected* employees that the devices are going to be removed.
4. Energize and proceed with testing or positioning.
5. De-energize all systems and reapply energy control measures to continue with servicing or maintenance.

Confined Space Entry Policy

VOSH requires compliance with 1910.Subpart-J of the OSHA standards for any confined space entry. VCU will not allow employees to enter confined spaces in violation of that standard.

Definitions

Confined space means a space that:

- (1) Is large enough and so configured that an employee can bodily enter and perform assigned work; and
- (2) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and
- (3) Is not designed for continuous employee occupancy.

Entry means the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

Permit-required confined space (permit space) means a confined space that has one or more of the following characteristics:

- (1) Contains or has a potential to contain a hazardous atmosphere;
- (2) Contains a material that has the potential for engulfing an entrant;
- (3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
- (4) Contains any other recognized serious safety or health hazard.

Permit-required confined space program (permit space program) means the employer's overall program for controlling, and, where appropriate, for protecting employees from, permit space hazards and for regulating employee entry into permit spaces.

NOTE: VCU -departments do not currently have such a program in place that would allow their employees to enter such spaces.)

Permit system means the employer's written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.

Entry permit (permit) -means the written or printed document that is provided by the employer to allow and control entry into a permit space.

Non-permit confined space -means a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

Hazardous atmosphere means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

- (1) Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);
- (2) Airborne combustible dust at a concentration that meets or exceeds its LFL;
NOTE: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 m) or less.
- (3) Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;
- (4) Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G, Occupational Health and Environmental

Control, or in Subpart Z, Toxic and Hazardous Substances, of this Part and which could result in employee exposure in excess of its dose or permissible exposure limit;

NOTE: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.

(5) Any other atmospheric condition that is immediately dangerous to life or health.

NOTE: For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Material Safety Data Sheets that comply with the Hazard Communication Standard, section 1910.1200 of this Part, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

Immediately dangerous to life or health (IDLH) means any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health

Oxygen deficient atmosphere means an atmosphere containing less than 19.5 percent oxygen by volume.

Oxygen enriched atmosphere means an atmosphere containing more than 23.5 percent oxygen by volume.

Testing means the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

NOTE: Testing enables employers both to devise and implement adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to, and during, entry.

GENERAL REQUIREMENTS.

Work areas will be evaluated to determine if any spaces are permit-required confined spaces. Known areas include Storage tanks, pits, boilers, vats, ventilation and exhaust ducts, sewers, tunnels, underground utility vaults, excavations, elevator pits, large pipes and pipe-lines.

When identified departments shall inform exposed employees, by posting danger signs or by any other equally effective means, of the existence and location of and the danger posed by the permit spaces.

NOTE: A sign reading DANGER -- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER or using other similar language would satisfy the requirement for a sign. Signs can be obtained from OEHS at 828-7899.

VCU staff will not enter such spaces.

NOTE: Departments who wish to undertake developing the intensive training, equipment purchases, and permit process to permit entry into confined spaces must contact the OEHS Occupational Safety office at 828-7899 in order to assure the department will be able to meet all applicable OSHA standards for such entry.

Non-permit confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm may be entered provided that departments (with OEHS assistance):

- Can demonstrate that the only hazard posed by the permit space is an actual or potential hazardous atmosphere;
- Can demonstrate that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry;
- Develops monitoring and inspection data that supports the demonstrations required by paragraphs above.
- If an initial entry of the permit space is necessary to obtain the data required by this section, the entry is performed in compliance with OSHA permit required confined space regulations (most likely by use of a contractor.)
- The determinations and supporting data required by this section are documented by and are made available to each employee who enters the space under the terms of this section or to that employee's authorized representative.
- Any conditions making it unsafe to remove an entrance cover shall be eliminated before the cover is removed.
- When entrance covers are removed, the opening shall be promptly guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect each employee working in the space from foreign objects entering the space.
- Before an employee enters the space, the internal atmosphere shall be tested, with a calibrated direct-reading instrument, for oxygen content, for flammable gases and vapors,

and for potential toxic air contaminants, in that order. Any employee who enters the space, or that employee's authorized representative, shall be provided an opportunity to observe the pre-entry testing required by this paragraph.

- There may be no hazardous atmosphere within the space whenever any employee is inside the space.

Continuous forced air ventilation shall be used, as follows:

An employee may not enter the space until the forced air ventilation has eliminated any hazardous atmosphere;

The forced air ventilation shall be so directed as to ventilate the immediate areas where an employee is or will be present within the space and shall continue until all employees have left the space;

The air supply for the forced air ventilation shall be from a clean source and may not increase the hazards in the space.

The atmosphere within the space shall be periodically tested as necessary to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere. Any employee who enters the space, or that employee's authorized representative, shall be provided with an opportunity to observe the periodic testing required by this paragraph.

If a hazardous atmosphere is detected during entry:

- Each employee shall leave the space immediately
- The space shall be evaluated to determine how the hazardous atmosphere developed

Measures shall be implemented to protect employees from the hazardous atmosphere before any subsequent entry takes place.

The employer shall verify that the space is safe for entry and that the pre-entry measures required by this section have been taken, through a written certification that contains the date, the location of the space, and the signature of the person providing the certification. The certification shall be made before entry and shall be made available to each employee entering the space or to that employee's authorized representative.

When there are changes in the use or configuration of a non-permit confined space that might increase the hazards to entrants, the employer shall reevaluate that space and, if necessary, reclassify it as a permit-required confined space.

When contractors perform work that involves permit space entry, the department and OEHS will:

- Inform the contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit space program meeting the VOSH requirements.
- Inform the contractor of the elements, including the hazards identified by experience with the space that make the space in question a permit space.
- Inform the contractor of any precautions or procedures that the host employer has implemented for the protection of employees in or near permit spaces where contractor personnel will be working;
- Coordinate entry operations with the contractor, when both host employer personnel and contractor personnel will be working in or near permit spaces.

NOTE: VCU employees will not enter confined spaces with contractors unless a full confined space entry procedure for that employee's department has been developed in conjunction with OEHS.

- Debrief the contractor at the conclusion of the entry operations regarding the permit space program followed and regarding any hazards confronted or created in permit spaces during entry operations.
- In addition to complying with the permit space requirements that apply to all employers, each contractor who is retained to perform permit space entry operations shall:
- Obtain any available information regarding permit space hazards and entry operations from the host employer;
- Coordinate entry operations with the host employer, when both host employer personnel and contractor personnel will be working in or near permit spaces.
- Inform the host employer of the permit space program that the contractor will follow and of any hazards confronted or created in permit spaces, either through a debriefing or during the entry operation.

Any questions concerning this policy should be directed to the OEHS Occupational Safety Section 828-7899.

Safety Audit Guidelines

OEHS safety inspectors routinely inspect all campus buildings, some twice a year for general and Life Safety compliance. Buildings are inspected in compliance with OSHA and JCAHO standards. Facility inspection and fire suppression/detection system testing is also conducted to comply with state and federal fire safety regulations. Corrective action is initiated as appropriate through Physical Plant Division or Facilities Management. All inspection activity is reported to the appropriate building or department managers. Summaries are reported to the university Safety Liaison Committee and the Environment of Care Committee. Documentation of all activity is maintained in the OEHS Fire and Occupational Section.

These inspections do not substitute for regular departmental inspections, or audits, of the work place. Checklists for conducting departmental safety audits can be found in the **Departmental** section of this manual.

Electrical Safety Guidelines

I. General Electrical Safety Guidelines

- A. The use of electrical power cord adapters and extension cords of any kind is prohibited except where approved by Plant Operations or Facilities Management.
- B. Do not handle electrical devices with wet hands, or when standing on a wet floor. "Wet" includes all fluids such as water, body wastes, sweaty hands, pharmaceuticals, etc.
- C. Electrical cords should be unplugged only by pulling on the plug itself - never by pulling on the power cord.
- D. Be sure to turn electrical power switches to the OFF position BEFORE either connecting or disconnecting the plug from the power outlet.
- E. Tape may not be applied to power cords except to provide additional protection from abrasion, and then only with the approval of the Facilities Management Division or Plant Operations. Splices are not permitted in power cords. All cut, abraded or otherwise damaged power cords must be replaced as soon as possible.

II. Unsafe Devices

- A. It is the responsibility of every staff member to take each electrically powered device which is known or suspected of being unsafe - including all devices which do not seem to work entirely as they should - out
- B. of service immediately.
- C. Such devices shall be promptly labeled with a sign reading "DEFECTIVE - DO NOT USE."
- D. Such devices are to be promptly taken out of service for evaluation, repair or disposal as appropriate.
- E. No toaster or toaster ovens or other devices with exposed coil elements may be used except in approved kitchens. Break areas in general are not approved kitchens. (Questions about whether an area is an approved kitchen may be directed to the OEHS Fire Safety Section at 828-7899 or 828-0040.)

III. Portable Space Heaters

Virginia Commonwealth University's Office of Environmental Health and Safety (OEHS) discourages the use of portable space heaters in any building. Prior to resorting to the use of a space heater:

A. Space Heater Need

1. Please ensure that all exterior windows and doors are properly closed in your building/area in an effort to keep the building warmer.
2. Please contact the Facilities Management (828-9444) and request them to increase the building/room heat.

If a portable space heater must be used as a temporary heat source, the following guidelines must be followed:

B. Space Heater Specifications

1. Space heaters must be electric powered only. Fuel powered (propane, kerosene) are not permitted. Space heaters must not take more than 110 volts to operate.
2. Electric space heaters with heated coils are **not** permitted. Only oil filled (with internal heating element) and ceramic electric space heaters are permitted.
3. Space heater must be UL (Underwriters Laboratory) listed or FM (Factory Mutual) approved.
4. Space heaters must have a thermostat so that the unit will automatically shut off when a certain temperature is reached.

C. Space Heater Operation

1. Space heaters must be kept at least three feet away from any combustible material and should **never be placed under desks**, tables or shelving.
2. Space heaters must always be turned off and unplugged when an area being heated is not occupied.
3. Space heaters should always be plugged directly into a wall receptacle or power strip with surge protection. Extension cords are not permitted.
4. Nothing should ever be placed on top of or touching a space heater.
5. If used, space heaters should be located in plain sight and clearly visible.
6. Maintain all paperwork (instructions, registrations, etc.) for as long as the heater is being used within the University.

Please contact OEHS at 828-7899 or 828-0040 if you have any questions or any further assistance is needed.

Safe Use & Storage of Flammable Materials Guidelines

DEFINITION:

For purposes of this guideline the term FLAMMABLE refers to all liquids and gases which will burn under ordinary conditions.

I. STORAGE

- A. Flammable materials shall be stored only in rooms which are free of combustible solids, oxygen and nitrous oxide cylinders.
- B. When stored in cabinets with doors, the cabinets must be marked "FLAMMABLE" on the door. This applies to even small quantities of flammables.
- C. Flammable liquids in quantities larger than what would normally be used in about 1 day (or in small containers) shall be stored only in approved safety cabinets, specially designed and labeled rooms, safety cans, or outside of the building.

(Safety cabinets may contain no more than 60 gallons of flammable liquids at any time.)

- D. Flammable materials may be placed into refrigerators ONLY if the refrigerator is a specially designed "explosion-proof" type and is so labeled.

II. USE

- A. All rooms where flammable materials are present shall be conspicuously posted as NO SMOKING areas.
- B. Where flammable liquids in large quantities must be heated, the Office of Environmental Health and Safety (OEHS) shall be consulted prior to such use. OEHS may request that certain preliminary safety precautions be taken.

III. DISPOSAL

- A. OEHS Chemical Safety Section 828-1392 shall be consulted on the disposal of all flammable and otherwise hazardous substances.
- B. Open vaporization of flammable materials for disposal is prohibited.

Holiday Decorations Guideline

PURPOSE

To provide that all Holiday decorations present minimal fire hazard and danger to patients, visitors and staff. Adequate preparation and inspection will enable everyone to safely enjoy the presence of attractive decorations during the holiday season.

Specific Instructions

Units wishing to decorate shall be required to follow these guidelines to provide for safety and uniformity in the selection and installation of decorations.

1. All decorations, including artificial trees, should be made of noncombustible or flame retardant materials. Decorations should be removed as soon as possible following the holiday period.
2. No live or cut trees, or greenery can be used within any building.
3. Always use "UL listed" lights and extension cords that are in good condition. Discard any electrical lights or cords with frayed, cracked, or exposed wiring.
4. Any lights used should be the "miniature" type, to keep heat levels to a minimum. Restrict lighting generally to displays in the main lobby areas.
5. No wires should extend across doorways, under doors, carpets or in walkways of any sort.
6. No decorations may obstruct exits, corridors, egress doors, smoke detectors, fire extinguishers, sprinkler heads, manual pull stations, horns, bells, or alarm lights. **(NO decorations are allowed on any cross corridor door.)**

If you have any questions, please contact the OEHS Fire & Occupational Safety Office at 828-7899 (MCV) or 828-0040 (Monroe Park).

GENERAL SAFETY GUIDELINES FOR ALL AREAS

All spilled liquids that are not hazardous materials must be immediately cleaned up by the person who created the spill. If circumstances prevent such immediate action, the Housekeeping Department in VCU shall be promptly called to clean up the area. Do not call Housekeeping to clean hazardous materials spills, follow proper procedures for such occurrence (hazardous spill procedures are outlined in the hazardous materials section of this manual). Under either circumstance the person who created the spill is responsible for assuring the spill is properly cleaned up.

Beverages may not be transported unless the container is either tightly covered or placed onto a tray.

Open doors slowly - there may be somebody on the other side.

Walk down the center of corridors, passing oncoming traffic on the right.

Promptly notify your supervisor of defective equipment and other safety hazards

All aisles, corridors and exits are to be kept clear of obstructions in order to provide clear and safe exits in case of an emergency.

All fires and/or smoke must be immediately reported.

Never prop or chock open fire doors or disable door closer devices. Do not disable automatic hold open devices installed on fire doors or in any way allow them to be obstructed. Report such problems to OEHS Fire Safety at 828-7899 for instruction on how to correct these problems.

SAFETY GUIDELINES FOR ADMINISTRATIVE & OFFICE AREAS

Do not lift or move typewriters or any other heavy piece of equipment without help. Call Facilities Management to request the moving of file cabinets, desks and similar large and/or heavy items of furniture.

Do not stand on chairs with wheels, or on folding chairs, at any time.

Keep all drawers and chairs pushed in under the desks and tables so as not to create stumbling hazards.

All electrical power cords should be taped out of the way and not allowed to cross walkways and aisles.

Keep aisles clear of debris - papers, paper clips, pencils, and other slip/tripping hazards.

Keep stored items orderly. In a sprinkled building nothing should be permitted within 18 inches of a ceiling in order to insure proper operation of the fire sprinkler heads.

Notify your supervisor of all safety hazards so that they can be corrected.

Report all equipment which you think may be defective to your supervisor.

Housekeeping and Environmental Services Safety Guidelines

Check for and report all unsafe conditions to Facilities Management 828-9444, such as:

- * defective equipment
- * loose floor coverings
- * defective carts
- * sharp edges
- * loose light fixtures
- * damaged light switch and power outlet covers

Do not attempt to fix any equipment yourself, at any time. Report defective equipment to your supervisor who will arrange for repairs to be made.

Safe floor cleaning and finishing procedures are important in reducing the number of slips & falls.

- a. Use a dry mop before using a wet mop.
- b. Mop only one side of a corridor at a time. Use the same procedure with floor finish.
- c. Post wet floor signs near the wet areas.
- d. Stay in the area until the entire floor is dry. Direct people to walk on the dry side.
- e. When possible, avoid leaving hoses and cords lying across halls.
- f. Do not block doorways or elevator entrances with equipment.
- g. Insure that all wet mops and equipment are removed from rooms and public areas when you are done.

Do not place articles on top of stepladders, cabinets, lockers or other high places.

Use rubber gloves when cleaning with strong chemicals. These gloves will be provided by the department. If there are none where you are working, ask your supervisor about them.

Do not mix or use unauthorized chemicals or chemicals you are unfamiliar with. Ask your supervisor to show you how safely mix and use them. Only authorized staff may mix Matar & Hi-Tor.

Cart Safety

- a. Park carts against walls, away from fire doors, fire extinguishers and fire alarm pull stations.
- b. Always stay to the center of corridors, so as not to run into people leaving rooms. Pass oncoming traffic on the right.
- c. Pull carts through swinging doors. Do not ram them through the door.
- d. Store materials in the cart in an orderly manner.
- e. Approach all intersections, doorways and elevators SLOWLY so that you will not run into anyone.
7. DO NOT PICK UP BROKEN GLASS WITH YOUR HANDS. Sweep it up with a brush and dust pan. Pick up small splinters and chips with a brush and dust pan or with a wet or damp cloth (and dispose of the cloth after doing this.)

8. Be sure to unplug electric cords before wiping the cord with a damp or wet cloth.
9. ALWAYS HANDLE ELECTRICAL EQUIPMENT WITH DRY HANDS.
10. ALWAYS unplug electrical cords by holding onto the plug - NEVER pull on the cord. Turn off machines before plugging them in or removing the plug from the wall.
11. DO NOT PUT YOUR HANDS INTO WASTEBASKETS TO EMPTY THEM. Remove the plastic bag by the edges. Do not swing bags against your legs as the bags may contain sharp objects.
12. Do not stand on the top step of any ladder. Make sure that the ladder's safety lock is in place and that the ladder is secure before putting your weight onto it.
13. Label all containers to indicate the contents. All unmarked containers must be promptly discarded. Unlabeled chemicals should not be used. Report all unlabeled chemicals to your supervisor for proper disposal through the OEHS Chemical Safety Section (828-1392).
14. Report slipping & tripping hazards to your supervisor promptly.
15. Keep housekeeping closets and other storage spaces clean and organized. Housekeeping closets must be locked when not in use.
16. Electrical closets and stairwell landings are not designed for housekeeping storage.
17. An unattended upright buffing machine should not be plugged in until you are ready to use it. If a buffer must be left unattended, make sure that the buffer is in a lying-down position.
18. Notify your supervisor of any wastes which may be hazardous as they may need special disposal.
19. Use proper handling procedures when removing and handling linen and trash.

Food and Nutritional Service Safety Guidelines

GENERAL

1. All work areas must be kept neat and orderly.
2. Manufacturer's safety instructions on food service equipment must be maintained in the department and made available to all personnel.
3. Warn all staff of any potential hazards in the use or handling of equipment.
4. All staff must be aware of emergency procedures to take in case of an accident.
5. Staff must be informed of the proper occurrence/incident reporting procedures. All incidents must be reported in writing, by the employee and their supervisor. The supervisor is responsible for taking corrective action, where possible, to prevent a recurrence.

6. Employees must immediately report the following to their supervisor:
 - Defective equipment
 - All injuries and accidents, regardless of how slight.
 - All cuts, sores, rashes, coughs, respiratory or gastrointestinal infections.
 - All unsafe conditions they are aware of.
7. Keep doors closed at all times. Open oven doors carefully to allow heat and steam to escape safely.
8. Wipe up spills and grease spots from floors IMMEDIATELY.
9. Walk - don't run.
10. Wear safe shoes with rubber soles and heels. Open toed shoes are not to be worn.
11. Follow the proper procedures for lifting and moving materials.
12. Use approved stepladders or step stools to reach high items. Wherever possible, place heavier objects at waist height, to cut down the possibility of muscle strains or back injury.
13. Use a brush or pan to pick up broken glass or china. Dispose of the pieces in the proper container. Do not handle broken glass or china with hands.
14. Use only employer supplied can openers.
15. Keep cleaning supplies, insecticides, chemicals, etc., away from food and food preparation areas.
16. Walk-in freezers and refrigerators must be easily opened from the inside, without tools. Test the emergency release occasionally to make sure it works.
17. All staff must know how to report a fire, and what to do if the fire alarm sounds.

SAFE HANDLING OF KNIVES

- Always cut away from your body. Walk with knives flat against your thigh.
- Store all knives in their proper location when not in use. Never leave a knife lying around.
- Do not put knives in a sink.
- Keep knives sharp - dull knives are a greater hazard.
- Do not use knives as can openers or screwdrivers or for any purpose other than for cutting food.

PREVENTION OF BURNS

- Always use mitts, pot holders or tongs when working with hot items, or near steam.
- Staff should warn others when they are carrying hot liquids, and be sure that the path is clear before starting in that direction.

FOOD CART SAFETY

- Push only by handle.
- Keep to the middle of corridors. Pass oncoming traffic on the right side.
- Move carts slowly. Get help if you need it.
- Use extra caution at corners. Use mirrors, where available, to watch for pedestrians at intersections.
- Do not leave carts in the center of corridors, blocking doorways, or where they can cause an obstruction.
- Pull carts through swinging doors. Do not push doors open with food carts.

Shop Safety Guidelines

I. PLANT OPERATIONS

Training

All staff must be qualified to perform duties to which they are assigned. Training must be documented.

II. HAND TOOLS

- Use each tool correctly and for the purpose it was intended. If you don't have the right tool with you, get it - don't improvise.
- Keep tools in good condition.
- Put tools away when you are through with them.
- Safety glasses must be worn by all persons using impact tools such as chisels, punches etc.
- Do not keep edged tools loose in a common work box or sitting on a bench.

Power Tools

- Safety glasses are to be worn by all persons using power tools.
- All power tools are to be either grounded or double-insulated.

- Inspect all power tools before using them to make sure they are in good operating condition.
- Power tools are to be used only by staff whom supervisors have authorized to use them.
- Do not drag power cords through water, oil, or over sharp metal edges.
- Guards on stationary power tools must be kept in place.
- Whenever possible, suspend cords overhead if there is traffic which may run (or trip) over them. If this is not possible tape them down with duct tape to prevent tripping hazards. Assure the cord cannot be damaged by traffic however.
- Have tools with frayed cords, broken plugs, or other damage repaired before using.
- Clean tools only with non-flammable safety solvents.
- Disconnect power cords whenever changing blades or otherwise working on power tools.
- When using power tools while on a ladder or scaffold, take into consideration the weight of the equipment, job to be done, and the increased chance of injury.
- Always shut off valves or switches when working on electrical systems. Apply warning tags and locks at lockout points such as fuse boxes and control panels.
- Do not overload electrical circuits. Never fuse too heavily. Electrical wiring is to be done only by a qualified electrician.

III. Ladder Safety

- Wood ladders are not to be painted over. Painted ladders must be discarded promptly, if found.
- Wood ladders are to be free from large checks, shakes, decay or knots.
- Promptly tag defective ladders for repair or destruction.
- Never use metal ladders when working on or around electrical devices or wiring, or where they (or the person on them) may come into contact with electricity.
- Ladders need non-slip bases.
- Never use ladders as scaffolds.
- Do not climb ladders with both hands filled with materials.
- Always face the ladder.
- Do not lean over too far.
- Do not stand on the top 2 rungs of a ladder.
- Rope off public areas and/or place warning signs below wherever ladders are being used.

IV. Machinery

- All equipment must have appropriate guards. Never remove guards that are provided.
- All flywheels, gears and other rotating parts of machines must be guarded against contact unless they are higher than 7 feet from the floor. Guards may not have openings larger than ½ inch.
- Table saws must be equipped with an upper blade guard, splitter and kick-back preventer.
- Gasoline powered equipment must not be operated indoors unless adequate ventilation is provided to properly vent exhaust fumes. Gasoline will only be used in approved containers, properly marked and stored.

V. Painting and Spraying

- A "No Smoking" rule must be enforced in paint and wood shops, and any other location where paints and thinners are used or stored.
- Fire extinguishers must be available wherever flammable paints or thinners are used or stored. Flammables must only be kept in approved containers properly labeled and stored. A properly labeled container includes the product name and the hazard warnings applicable to the product.
- When spray-painting, a respirator and gloves shall be worn. Respiratory protection will be selected and approved by OEHS.
- Gasoline powered air compressors should not be used indoors.

VI. Electrical Safety (See the Lockout/Tagout Policy section of this manual)

- Before machinery is worked on the electrical controls must be shut off, tagged and locked. Tags and one-key locks should be removed only by the person who originated their use.
- Electricians should not repair, service, or perform any operations on energized electrical lines or equipment, except as follows:
 - Where cutting of power would present an immediate hazard to life.
 - If voltage adjacent to equipment being worked on exceeds **250 volts**, two or more electricians must be present.
- All electrically operated equipment must be provided with a grounding cord and cap.
- Panel board circuit identification directories must be kept current.
- Panel boxes must have all unused openings (knock-outs) sealed. Blank-ups need to be installed in all breaker panels where circuits are exposed, due to unfilled breaker slots.

HOT WORKS PERMIT PROGRAM

HOT WORKS -WELDING, CUTTING, SOLDERING & OPEN FLAME OPERATIONS

All welding, cutting, soldering & open flame operations performed in any VCU, MCVH, or MCVP controlled facility on either campus requires the issuance of a Hot Works Permit from the OEHS, Fire and Safety Office. This permit system applies to all work performed by in-house or by contractors to the university, VCUHS. To Comply:

- A. Follow the Hot Works Permit Program that requires:
 1. Contact OEHS (828-7899) to obtain the required Hot Works Permit, prior to beginning work. Fax to 828-1773 (MCV) or 828-8316 (MPC)
 2. Notification to the Customer Service Center at 828-9364 - **Before Work Is Started and Upon Completion.**
 3. Providing a fire watch during and after the “hot” activity. The fire watch should be familiar with all procedures to report fires and activate alarms.
- B. Acetylene, oxygen and other compressed gas cylinders must be:
 1. Capped at all times except when connected to the welding cart.
 2. Secured upright at all times.
- C. Appropriate fire extinguisher(s) must be on the welding cart, and or in the area at all times.
- D. All personnel shall wear protective apparel when welding, cutting and/or soldering. This should include gloves, hoods, goggles and aprons as applicable. Ankle-high shoes, with trousers outside of them, should be worn to prevent molten material from falling into shoes.
- E. Screens and warning signs should be set up to prevent eye injuries to nearby persons.
- F. Make sure that all explosive vapors have been removed from containers before working on them.
- G. Never snap or throw solder to get it off a hot iron.

On the next page is a sample Hotworks Permit. If needed please photocopy the form, completed forms need to brought to the OEHS Fire Safety Office, 1000 E. Marshall Street or 700 West Grace Street, Suite 2100.

VCU HOT WORKS PERMIT FOR CUTTING, WELDING, AND ROOF REPAIR

(complete all blank spaces, or write n/a)

BEGINNING DATE OF HOT WORK: _____

PROJECTED COMPLETION DATE: _____

(notify Control Center at 828-9364 when finished)

BUILDING: _____

FLOOR OR ROOM: _____

DAILY STARTING TIME: _____

DAILY COMPLETION TIME: _____

WORK TO BE DONE: _____

ROOF REPAIR METHOD*WATER HOSE AVAILABLE (Y/N) _____

TYPE OF WELDING PROCESS: _____

SPECIAL PRECAUTIONS: _____

I VERIFY THAT ITEMS 1 THRU 15 ON THE OPPOSITE SIDE OF THIS PERMIT HAVE BEEN REVIEWED AND COMPLETED, AS NECESSARY.

(ARRANGEMENTS HAVE BEEN MADE FOR ITEM 18).

I. VCU-MCVH SUPERVISOR/INSPECTOR:

NAME (please print): _____

SIGNED: _____

II. ON-SITE LEAD-MAN/FOREMAN (if different from above):

NAME (please print): _____

DEPARTMENT OR COMPANY NAME: _____

TELEPHONE NUMBER: _____ BEEPER NUMBER: _____

RADIO NUMBER (IF ANY): _____

**When the permit has been filled out, return to the VCU FIRE AND OCCUPATIONAL SAFETY SECTION (of the Office of Environmental Health and Safety-OEHS) to receive final authorization to proceed.

III. FOS STAFF MEMBER--NAME (print) _____

SIGNED: _____

Post copy on door or wall near the entrance to the hot work area. **IN CASE OF FIRE, CALL *50 OR 828-9364. (FOR INFORMATION, CALL Fire and Occupational Safety at 828-7899 or 828-0040).

DO NOT CUT, WELD, OR USE OTHER OPEN FLAME OR SPARK PRODUCING EQUIPMENT UNTIL THE FOLLOWING PRECAUTIONS HAVE BEEN TAKEN.

CHECK EACH ITEM:

- ___ 1) APPROPRIATE FIRE EXTINGUISHERS ARE ON SITE AND WORKERS ARE TRAINED IN USING THEM.
- ___ 2) THE CONTROL CENTER WILL BE NOTIFIED BEFORE BEGINNING WORK EACH DAY, AND AT THE END OF EACH DAY. **(828-9364)**
- ___ 3) FLOOR/WALLS/CEILING ARE CLEAR OF COMBUSTIBLE MATERIALS WITHIN 35 FEET OF THE WORK AREA, OR THE SURFACES ARE COVERED WITH FIRE RETARDANT COVERS.
- ___ 4) THERE IS NO FLAMMABLE LINT, DUST, VAPORS, LIQUIDS, OR CONTAINERS AND EQUIPMENT THAT CONTAINED SUCH MATERIALS, IN THE AREA.
- ___ 5) FLOOR OPENINGS WITHIN 40 FEET ARE TIGHTLY COVERED.
- ___ 6) ALL HOT-WORKS EQUIPMENT TO BE USED HAS BEEN INSPECTED, AND IS IN GOOD REPAIR.
- ___ 7) THE SPRINKLER SYSTEM, WHERE PROVIDED, IS IN SERVICE.
- ___ 8) SMOKE DETECTORS, WHERE PROVIDED, HAVE BEEN PREVENTED FROM ALARMING, THROUGH APPROPRIATE METHODS USED BY QUALIFIED TECHNICIANS.
(ie., covered, removed, or system disabled).
- ___ 9) THE NEAREST MANUAL PULL STATION HAS BEEN LOCATED, AND ALL WORKERS KNOW HOW TO OPERATE IT.
- ___ 10) A RESPONSIBLE FIRE WATCHER HAS BEEN ASSIGNED TO WATCH FOR DANGEROUS SPARKS IN THE AREA, AS WELL AS THE FLOORS ABOVE AND BELOW, AND OPPOSITE WALLS.
- ___ 11) A RESPONSIBLE FIRE WATCHER WILL REMAIN ON THE JOB SITE FOR 30 MINUTES AFTER COMPLETION OF THE JOB.
- ___ 12) IF A FIRE OCCURS, A TELEPHONE OR RADIO IS IMMEDIATELY AVAILABLE TO CALL THE CONTROL CENTER AT 828-9364.
- ___ 13) FIRE EVACUATION ROUTES ARE NOT BLOCKED OR ALTERED. ALL FIRE EXITS ARE OPEN.
- ___ 14) DO STAFF IN THE BUILDING NEED NOTICE OF EVACUATION ROUTE CHANGES OR DRILLS?
In confined spaces only:
- ___ 15) REVIEW OSHA REGULATIONS CONCERNING CONFINED SPACE WORK.
- ___ 16) APPROPRIATE MONITORING FOR COMBUSTIBLE GAS, OXYGEN DEFICIENCY, AND TOXIC CHEMICALS HAS BEEN CONDUCTED.
- ___ 17) VENTILATION DEVICE WILL BE USED.
- ___ 18) RESPIRATORY EQUIPMENT WILL BE USED.

FIRE WATCHER NAME (please print): _____
DEPARTMENT OR COMPANY: _____
FIRE WATCHER SIGNATURE: _____

Transportation Safety Guidelines

All employees who drive VCU vehicles need to show their valid driver's license to their supervisor to be copied for the employees' employment file. This must be done before the vehicle is driven and preferably before the employee is hired, and should be re-verified annually. If an employee will drive any vehicle as a primary job duty, list a valid driver's license in the requirements for recruitment, with a request for a current DMV record.

Safety belts are to be used at all times, as required by state law and. If a vehicle is ticketed or towed the department needs to have a policy as to who is responsible for paying the costs. A vehicle sign out log is useful when more than one driver uses the vehicle.

Fire and Occupational Safety Training

The Fire and Occupational Safety Section of the Office of Environmental Health and Safety has developed training classes in these areas. Below are listed the courses, manuals and targeted staff.

Training Course *

Safety Awareness
 Life Safety Sec.
 Nursing Inservice
 Evacuation Training
 Evacuation Coordinator/ Floor Monitor
 Hands-on-Fire Extinguisher Training
 Dr. Red Drill Training
 Resident Assistant/Security Training
 Biology Graduate Assistants
 VCU Police Academy
 Lockout/Tagout
 Confined Space
 Ergonomics
 Forklift training
 Defensive Driving
 Electrical Safety
 Preventing Heat Stress
 Personal Protective Equipment
 Housekeeping Safety
 Hazard Communication/ Global Harmonization

Target Audience

All non-healthcare, paid workers
 Existing Healthcare Workers
 New Healthcare Workers
 Specific for area and building

 Specific for area, as requested
 Per schedule and special requests
 Housing Student Employees
 Graduate Students
 VCU Police Officers
 Maintenance Employees
 Maintenance Employees
 All Employees
 Maintenance Employees
 All Employees
 All Employees
 All Employees
 Maintenance Employees
 All Employees
 Environmental Services
 All Employees

Training Manual

Safety Awareness Handbook

 Interim Life Safety Program

 Hot Works Permit Program

 Workers Right to Know brochure

Target Audience

All new employees

 Outside Contractors, VCUHS Plant
 Operations, FMD

 Maintenance and Contract Workers

 All employees

Questions and requests for written materials should be directed to the Fire and Occupational Safety Section of OEHS at **828-7899**.

RADIOACTIVE MATERIALS

RADIATION SAFETY TRAINING

The Radiation Safety section of Environmental Health & Safety provides radiation safety training for radiation workers at VCU/VCUHS and maintains documentation of this training. Following is a list of radiation safety training programs and manuals.

Training Course

Target Audience

Safety Awareness Program
 Radiation Safety On-Line Training
 Radiation Safety Short Course
 Radiation Safety Inservice Training

Orientation for new employees
 Radiation lab workers and refresher training
 Research Investigators (1 credit, 15 hour course)
 Specific for area, as requested

Training Manual

Target Audience

Safety Awareness Employee Handbook
 Radiation Safety Manual for Nuclear Medicine
 Radiation Safety Manual for Radiation Oncology
 Radiation Safety Manual for Nurses
 Radiation Safety Manual for Radiology
 Radiation Safety Guide
 Radiation Safety Manual for Research Irradiator
 Radiation Safety for Animal Facility

Orientation for new employees
 Radiation workers in Nuclear Medicine
 Radiation workers in Radiation Oncology
 Nurses who work with brachytherapy patients
 Radiation workers in Radiology
 Radiation workers in laboratories
 Radiation workers using research irradiator
 Radiation workers in the Animal Facility

Questions and requests for information about the radiation safety training programs and manuals should be directed to the Radiation Safety Section of OEHS at 828-9131.

RADIATION SAFETY PROGRAM

Radiation Workers

Some employees are likely to be exposed to radiation in the course of their normal job duties. Radiation and radioactivity are used in several areas of VCU/VCUHS, including the departments of Nuclear Medicine, Diagnostic Radiology (X-Ray), Radiation Oncology, and in many of the university's research laboratories. Some employees who work in these areas are classified as radiation workers and subject to radiation protection controls.

Radiation and Risk

Exposure to high levels of radiation has been associated with cancer, birth defects, and health problems. At the dose levels permitted for employees at VCU there are no known health effects, but it is sensible to keep radiation exposure as low as possible. In general, the risks associated with occupational exposure are smaller than the risks associated with most day-to-day activities.

Natural Radiation

Natural radiation is everywhere. We are exposed to a constant stream of radiation from outer space. Radioactivity is in the ground, the air, the buildings we live in, the food we eat, the water we drink, and the products we use.

Radiation Exposure

Radiation exposure is measured in Sieverts or rems. An individual in the United States averages approximately 3.2 milliSieverts (or 320 millirem) of exposure each year from natural sources. In addition, many of us will average another 3 milliSievert (or 300 millirem) per year from medical procedures.

Sources of Radiation at VCU/VCUHS

Sources of radiation exposure at include laboratories which perform research using radioactive materials, patients undergoing medical procedures using radioactive medicines or sources, and radiation producing devices such as X-ray machines. Radiation exposure can occur by contamination of skin or clothing, eating and breathing radioactive materials, exposure to radiation from patients, and from activated x-ray or therapy machines. Patients can also be a significant source of radiation when they have undergone treatment using radioactive medicines or sources. The chart and door to the patient's room are labeled during such therapies. Patients who are given very small amounts of radioactive medicine do not pose significant radiation hazards and their rooms are not labeled.

ALARA

VCU is committed to keeping radiation exposures as low as reasonably achievable (ALARA). Coordinated by the university's Radiation Safety Committee, the ALARA program sees that every activity involving radiation is planned to minimize exposure for employees, students, patients, and visitors.

Radiation Safety at VCU/VCUHS

The use of radiation and radioactivity is governed by the Commonwealth of Virginia's Radiological Health Program and the Nuclear Regulatory Commission. The Radiation Safety staff directs and coordinates the university's radiation safety program and is responsible for its day-to-day operation, including 24 hour radiation emergency response. The Radiation Safety Committee, which is appointed to review the radiation safety program, is committed by written policy to keep radiation doses for employees, students, patients and visitors as low as reasonably achievable. The Radiation Safety staff is responsible for ensuring that all radiation safety regulations set forth by the Commonwealth of Virginia, the Nuclear Regulatory Commission (NRC), and VCU are observed.

Copies of the State radioactive materials license, results of State inspections, and Parts IV and X of 12VAC5-481, which are the Commonwealth of Virginia regulations concerning "Standards for Protection Against Radiation" and "Notices, Instructions and Reports to Workers; Inspections", are available from the Radiation Safety Office.

Instruction in safety measures which individuals should use to minimize their radiation exposure have been developed for all applicable areas. In some cases specific procedures must be followed. Your supervisor should advise you of the precautions to be taken and identify all applicable procedures.

Guidelines for IRB Protocols Involving the Use of Ionizing Radiation

The Radiation Safety Committee (RSC) is charged by State and Federal regulatory agencies to oversee the use of ionizing radiation at VCU/VCUHS. Sources of ionizing radiation include both radioactive materials and radiation-producing devices. Examples of uses of these sources include (but are not limited to) chest x-rays, DEXA scans, CT scans, fluoroscopy, and nuclear medicine procedures. **Use of ionizing radiation in human research in any manner that does not directly benefit the patient/subject must be approved by the RSC.**

To comply with FDA and DHHS guidelines and regulations, the Institutional Review Board (IRB) must assure that the patient/subject enrolled in an investigational study is adequately informed about risk. Since the use of ionizing radiation in humans is associated with health risks in proportion to the amount of radiation received, it is the responsibility of the Principal Investigator (PI) to inform the IRB of any ionizing radiation procedures employed in the study. Additionally, the PI will be required to identify those ionizing radiation procedures that are beyond routine standard of care and for research purposes only (i.e., procedures that **do not** directly benefit the patient/subject). **Note: the PI and the IRB will be ultimately responsible for determining whether a procedure is for the direct benefit of the patient/subject.** If the protocol includes procedures of this type, prior RSC approval is necessary before the protocol can be submitted to the IRB. The PI, or designee, shall contact the Radiation Safety Officer (RSO) or his designee and supply the necessary information about the ionizing radiation procedure(s). The anticipated whole body effective dose equivalent (EDE) will be calculated from this information and an appropriate risk statement developed by the RSO for inclusion into the informed consent document. The EDE and other pertinent information will be used by the PI to complete an RSC application form to be reviewed for approval by the RSC Executive Committee (10 working day turnaround). Protocols received by the IRB without prior RSC approval (and proper consent form risk statement) will not be evaluated until RSC approval is obtained.

Inclusions to Summary and/or Cover Sheet

The cover sheet or summary sheet of the IRB protocol application includes three Y/N check boxes to provide a quick means of determining whether the study patients/subjects are exposed to ionizing radiation and whether or not the PI has complied with the instructions stated above. The first box identifies if **any** ionizing radiation procedure(s) will be included in the study; the second box indicates if there will be procedure(s) that are **not** for the direct benefit of the patient/subject; and the third box indicates if RSO approval has been obtained.

Informed Consent Information for Ionizing Radiation Procedures

The investigator or Radiation Safety will calculate the anticipated whole body effective dose equivalent (EDE) from all procedures involving ionizing radiation that are not for the direct clinical benefit of the patient.

The calculated dose will be expressed as a fraction or percentage of the annual permissible occupational exposure level for the whole body.

The informed consent will include a statement of the relationship of the anticipated dose to the annual permissible occupational whole body exposure level of 5 rem (i.e., 1/10, 1/3, 2X, etc.).

To assist the subject in understanding the meaning of “permissible occupational exposure levels” the following statement will be included in the appropriate section of the consent form: “The National Council on Radiation Protection and Measurements has set permissible occupational radiation exposure limits for many radiologists, technologists, and scientists who work with radiation and are exposed nearly every day. These limits are defined as the dose of radiation that, in light of present knowledge, is not expected to cause appreciable bodily injury to a person at any time during his/her lifetime. The risk of this amount of occupational exposure to radiation is, thus, considered to be very small and less than that associated with normal everyday activities. The radiation dose mentioned is what you receive from the research component of this study only and does not include any exposure you may have received or will receive in the future from other tests.” (See below for sample risk statement).

Sample Risk Statement

In the sample protocol, the patient will receive a nuclear medicine MUGA scan. The approximate EDE for this procedure is 475 mrem. The following information should be included in the appropriate section of the informed consent:

“As a participant in this study you will receive extra radiation exposure from studies that are for research purposes only (not for your direct clinical benefit). Your radiation dose from this procedure is approximately one-tenth (1/10) [alternatively, approximately 10%] of the annual permissible occupational exposure level for radiation workers. The National Council on Radiation Protection and Measurements has set permissible occupational radiation exposure limits for many radiologists, technologists, and scientists who work with radiation and are exposed nearly every day. These limits are defined as the dose of radiation that, in light of present knowledge, is not expected to cause appreciable bodily injury to a person at any time during his/her lifetime. The risk of this amount of occupational exposure to radiation is, thus, considered to be very small and less than that associated with normal everyday activities. The radiation dose mentioned is what you receive from the research component of this study only and does not include any exposure you may have received or will receive in the future from other tests. “

Which Radiation Safety Committee Application form should be used?

All application forms are available at <http://www.vcu.edu/oehs/radiation/forms.htm>. The ionizing radiation procedure to be performed will determine which application form to submit to the Radiation Safety Committee.

- A: For studies involving clinically approved procedures (e.g., procedures routinely performed in Radiology or Nuclear medicine - chest x-rays, CT's, MUGA scans), use the "Application for Clinically Approved Procedures."
- A: For studies involving the use of radioactive material that is for research purposes only and not performed clinically, use the "Application for the *In-Vivo* Use of Radioactive Materials."
- A: For studies involving the use of radiation-producing devices that are for research purposes only and not performed on a routine basis, use the "Application for the Human Use of Radiation-Producing Devices."

All forms are available for download in Microsoft Word format. Contact the Radiation Safety section at 828-9131 if there are any questions about which form to use.

Radiation Emergency Plan

The Radiation Emergency Plan is distributed to the departments and offices which are involved in planning or participating in radiation emergency drills and actual incidents. The locations listed below should have copies of the plan.

- VCUHS Administration
- VCUHS Risk Manager
- VCU/VCUHS Office of Marketing and Public Affairs
- VCUHS Emergency Department
- Nuclear Medicine Division
- Telepage (Notification pages)
- VCU Campus Police
- Central Services
- VCUHS Hospital Transportation Department
- VCUHS Pharmacy Services
- Radiation Safety Section of the Office of Environmental Health & Safety (OEHS)
- Chemical Safety Section of OEHS
- VCUHS Safety & Security

Questions and requests for information about the Radiation Emergency Plan should be directed to the Radiation Safety Section of OEHS at 828-9131.

DEPARTMENTAL SAFETY PROGRAM

This section is provided for your department, school, or unit's safety policies and procedures. No one safety manual can cover all the needs for a diverse university/hospital environment. Some departments within the university and hospital, like Pathology, have developed their own departmental safety manual. For those departments, just a note in this section referring the staff to the safety policies and procedures will meet this section's requirements.

If you have not developed your own departmental safety policies and procedures, a committee should be appointed to address the individual safety needs of your area.

The Office of Environmental Health and Safety is available as a resource by calling 828-7899.

SAFETY AUDIT GUIDELINES

OEHS Safety Inspectors routinely inspect approximately 130 campus buildings, twice a year for general and Life Safety compliance. Buildings are inspected in compliance with OSHA and JCAHO standards. Facility inspection and fire suppression/detection system testing is also conducted to comply with state and federal fire safety regulations. Corrective action is initiated as appropriate through Physical Plant Division or MCVH Plant Operations work orders, or through contract. All inspection activity is reported to the appropriate building or department managers. Summaries are reported to the university Safety Liaison Committee and the Academic Medical Campus Safety Committee. Documentation of all activity is maintained in the OEHS Fire and Occupational Section.

These inspections do not substitute for regular departmental inspections, or audits, of the work place.

DEPARTMENTAL AUDITS

Periodic safety audits (surveys) for hazard recognition is in the best interest of the university population. The Office of Environmental Health and Safety conducts periodic inspections but recommends that each department's management program consist of a self audit that includes safety. The following "Profiles" can be used as a starting point to develop a survey form more tailored to your area. If your department has several locations, you may want to use the following "Self-Survey Request Memo."

SAMPLE SELF-SURVEY REQUEST MEMO

TO: _____ DATE: _____
FROM: _____ RE: Safety Surveys

As part of the department's ongoing safety program, I would like to request that you perform a safety survey of your area.

1. Enclosed you will find a set of safety questionnaires. Please assign each to a different member of your department.

2. Sometime before _____, please ask your staff about safety matters they feel should be corrected. If you conduct department meetings, this would be a good place to do this.
 - a. Find out about matters such as slippery spots on the floors, what they're bumping head or hands on, sharp corners, etc.

 - b. Do they use good body mechanics to prevent back injuries and muscle strains? Do they feel that they would like more training in this?

3. Take some time to observe your staff to determine if they are doing things safely. Please take a moment to comment on safe behavior practices and correct any unsafe behavior. Please complete this safety survey and return the results to me by _____.

Thank you for your cooperation in helping make VCU/MCV a safer place to work.

SAFETY PROFILE - GENERAL SAFETY

DATE: _____

LOCATION: _____

SURVEYOR: _____

YES NO N/A

- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are drawers kept closed at all times when not actually in use? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are chairs and other furniture in good condition? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are all compressed gas cylinders which may be in your area secured from falling over? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | During the survey, were all staff observed using proper body mechanics? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | In areas where items are stored or placed overhead, is there ready access to a suitable step stool, step ladder, or similar device? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | In storage areas, are the heavier items stored at waist level, with the lightest objects placed on the higher shelves? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is your area free of items which are likely to cause eye or head injuries, or which create an unusual bumping hazard? (Consider the use of protective padding.) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are all vehicles (carts, wheelchairs, etc.) in good operating condition? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Has personal protection equipment been provided to all employees needing it? Have they been trained on how to inspect and use the equipment? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is the area free of clutter? Are all hallways clear of storage? Is excess paper improperly stored creating a fire risk? |

Please list any comments made by staff in your area, or your own observations, which may help reduce accidents. Use the back of this sheet and as much additional paper as necessary.

SAFETY PROFILE - FIRE & DISASTER

DATE: _____

LOCATION: _____

SURVEYOR: _____

YES NO N/A

 Are all fire alarm pull stations and fire extinguishers accessible?

 Does all staff know the locations of at least two fire extinguishers in or near their work area?

 Does staff in the area know the proper reporting procedure if they find (or believe there may be) a fire?

FOR YOUR INFORMATION:

1. Remove persons from immediate danger.
2. Close the room door.
3. Report the fire by first pulling the fire alarm pull station and then calling *50 for MCV or 8-1234 for Academic Buildings.
4. Extinguish the fire ONLY after the above has been done.
5. Visible or obvious smoke or flame must be reported as a fire. Strange odors, which may be smoke from fire, should be reported to telepace or FMD control center. Do not leave the situation unreported - check out all possible fire situations.
6. Leave the building using the nearest stairs.

 Is ANYTHING stored closer than 18 inches from the ceiling?

 Are all containers of powders, liquids and gases labeled as to contents?

 Did you observe anyone smoking in the corridors or other no smoking locations? Who? (Use the back of this sheet.)

 Are NO SMOKING signs prominently posted wherever oxygen cylinders are present?

 Are all wastebaskets and ashtrays in the area made of non-combustible material?

 Is the area free of portable space heaters?

Please list any comments made by staff in your area, or your own observations.

SAFETY PROFILE - HALLWAYS, STAIRS & EXIT PATHS

DATE: _____

LOCATION: _____

SURVEYOR: _____

YES NO N/A

- Are all carts, wheelchairs, and/or other items in the corridors of healthcare buildings placed along the same side of the hall, or otherwise placed so that they do not create a hazard?
- Are the corridors reasonably clear of obstructions?
- Are all wet floors marked with "CAUTION, WET FLOOR" (or similar) signs?
- Is carpeting secure to the floor, unfrayed, free from tripping hazards, and generally in good condition?
- Are hard floor surfaces secure and free of tripping and slipping hazards? Are floor surfaces uneven or in need of repair?
- Are all EXIT signs illuminated?
- When opened and then released, do all fire doors close and latch properly?
- Are stairwell handrails in good condition?
- Are stair treads in good condition?
- Are stairwells completely clear of obstructions and any objects? (Stairwells may not be used for storage or for smoking.)
- Is the housekeeping in this area adequate?

Please list any comments made by staff in your area, or your own observations, which may help reduce accidents. Use the back of this sheet and as much additional paper as necessary.

SAFETY PROFILE - ELECTRICAL SAFETY

DATE: _____

LOCATION: _____

SURVEYOR: _____

YES NO N/A

 Is access to electrical panels clear and not obstructed:?

 * Are all electrical switches & circuit breakers identified?

* If not, list the locations of those which are not on the back of this sheet.

 Are all electrical receptacles and cover plates in good condition?

 Are electrical cords and plugs in good condition? Check for damaged insulation, cut cords, splices, and tape wrapped around the cord - none of which should be present.

 Are "grounded" extension cords used (3 pins on the plug)?

 Have all extension cords been approved for use by the Physical Plant Division?

 Is the area completely free of electrical power cord adapters of any type, except where approved by the Electric Shop?

 Is all electrical equipment in the area appear to be in good condition?

NOTE: Remove any defective equipment from service immediately!

1. Explain all NO items, or their locations, on the back of this sheet. Be as specific as possible.
2. List the locations of ALL extension cords in use, on the back of this sheet.
3. List any comments made by staff in your area, or your own observations, which may help reduce accidents. Use the back of this sheet and as much additional paper as necessary.

SAFETY PROFILE - LABORATORY

DATE: _____

LOCATION: _____

SURVEYOR: _____

YES NO N/A

- | | | | |
|-----|-----|-----|---|
| [] | [] | [] | Are the emergency showers, eyewash stations, and fire extinguishers accessible? |
| [] | [] | [] | Are aisles clear and unobstructed to permit ready access out of the area in case of fire or another emergency? |
| [] | [] | [] | Are flammable storage cabinets located out of hallways and exit paths? |
| [] | [] | [] | Are corrosives stored only on the lowest shelves? |
| [] | [] | [] | Are flammables, acids & bases all stored separately from each other? |
| [] | [] | [] | Are all refrigerators labeled to indicate whether or not they are safe for the storage of flammables? |
| [] | [] | [] | Are all non-explosion proof refrigerators entirely free of flammables? |
| [] | [] | [] | Are all chemicals labeled to indicate their contents. |
| [] | [] | [] | All chemical containers labeled to indicate any hazard which may be present (i.e., TOXIC, CORROSIVE, FLAMMABLE, etc.) |
| [] | [] | [] | Are Material Safety Data Sheets (MSDS) available for ALL products in the laboratory? |
| | | | a. If not, consult the manufacturer's website for a copy of the MSDS. |
| | | | b. Please list any products you do not have MSDS for, on the back of this sheet and check with OEHS to see if they have a copy. |
| [] | [] | [] | Are food products, including beverages of any sort, kept out of the laboratory work environment at all times? |
| [] | [] | [] | During the survey, were all staff observed using proper body mechanics? |
| [] | [] | [] | During the survey, were all staff wearing the appropriate lab clothing? (No open toed shoes, no shorts) |

Please list any comments made by staff in the lab, or your own, on the back of this sheet. Use additional paper if necessary.

SAFETY PROFILE - VEHICLES

DATE: _____

LOCATION: _____

SURVEYOR: _____

EQUIPMENT INSPECTED: _____

<u>OK</u>	<u>NO</u>	<u>N/A</u>	
[]	[]	[]	Oil Level
[]	[]	[]	Battery, Radiator, Brake and Windshield Washer Fluid Levels
[]	[]	[]	Battery Terminals, Air Filter
[]	[]	[]	Tires - Condition
[]	[]	[]	Rubber Hoses, Belts - (Fan, Generator, Alternator)
[]	[]	[]	Doors, Mirrors, Windshield and other Glass
[]	[]	[]	Head Lights, Signal Lights, Brake Lights and Other Lights
[]	[]	[]	Windshield Wiper Blades, Arms and Motor Operation
[]	[]	[]	Safety Belt for Each Passenger
[]	[]	[]	Horn
[]	[]	[]	Other - (Defroster, Mechanical Defects, Paint etc.,)
[]	[]	[]	Safety Equipment - (Bumper Jack, Lug Wrench, Flares, 5 lb. ABC Extinguisher, Bungee Cords and/or Equipment needed to secure loads.)
[]	[]	[]	Mileage and Maintenance Log

Explain all NO items, or their locations, on the back of this sheet. Be as specific as possible as to who is going to fix problems identified and by when.